Policy: Implementing the Aquatic Life Narrative Standard

Background

During the development of revisions to the Class 3 and Class 4 water quality standards, ***Tribal partners and stakeholders expressed serious concerns about the protection of aquatic life. Many felt that the numeric values in the existing Class 3 and, especially, Class 4A water quality standards were providing some degree of protection to aquatic life, particularly from the impacts of ionic pollutants such as bicarbonates, total dissolved salts, specific conductance, and sulfate. However, commenters also noted that the values in the existing Class 3 and 4 water quality standards are not sufficient to protect aquatic life.***

The choice of values in a water quality standard is inextricably linked to the beneficial use that the standard is designed to protect. The values in the existing Class 3 and Class 4 water quality standards were designed to protect the Class 3 and Class 4 beneficial uses – industrial consumption and agriculture. The values in the existing Class 2 water quality standards were designed to protect aquatic life beneficial uses. Values cannot simply be moved between use classes. The MPCA agrees that additional water quality standards are needed to fully protect Class 2 aquatic life beneficial uses from the impacts of certain pollutants – particularly ionic or salty parameters. There is active research around the appropriate magnitude or level of those Class 2 standards, specifically around chloride and sulfate, that MPCA anticipates being the foundation for a future Class 2 rulemaking. Because this present rulemaking is to revise Class 3 and Class 4 standards to protect industrial consumption and agriculture beneficial uses, the consideration of aquatic life beneficial use protection is not relevant.

While not relevant to the current Class 3 and Class 4 rulemaking, it may be helpful to share information on steps the MPCA is taking related to Class 2 aquatic life and ionic pollutants. This document lays out an interim approach to protecting aquatic life from the adverse impacts of ionic pollutants, until numeric standards for those pollutants are developed and incorporated through future rulemaking into Minnesota's Class 2 water quality standards.

Narrative Standard to Protect Aquatic Life

This interim approach is grounded in Minnesota's Class 2 narrative water quality standard to protect aquatic life. The main expression of the narrative standard is in Minn. R. 7050.0150, Subp. 3. This states that "For all class 2 waters…the normal aquatic biota and the use thereof shall not be seriously impaired or endangered, the species composition shall not be altered materially, and the propagation or migration of aquatic biota normally present shall not be prevented or hindered by the discharge of any sewage, industrial waste, or other wastes to the waters."

In addition, Minn. R. 7050.0222 contains narrative statements that the quality of each surface water with a Class 2 designation should be "such as to permit the propagation and maintenance of a health community of…aquatic biota and their habitats[,]" as appropriate to the Class 2 subclass (Class 2A cold water, Class 2B warm or cool water, Class 2D wetlands).

While a narrative standard provides a clear statement of the conditions that should be present in waterbodies, it does not provide numeric values that must be met to ensure those conditions. It therefore is less easily used to craft permit conditions, and an additional step is needed in order to implement narrative standards in discharge permits.

Implementing Narrative Standards

The additional step(s) needed to implement a narrative standard in a facility permit include the concept of a "translator." A "translator" is a process or method to regulate a permitted point source discharger to ensure compliance with a narrative standard. The EPA offers guidance on the use of translators and they are used by many states. A translator often results in a numeric effluent limit for a specific pollutant which, if met, ensures that the narrative standard is met in the waterbody. Although a translator can be developed as part of the design of a narrative standard, it can also be developed as part of separate implementation procedures.[1] Minnesota's Class 2 narrative standard to protect aquatic life has been in place for some time, but has not had separate implementation procedures.

Stakeholders and Tribal partners have asked the MPCA to develop a mechanism to implement the Class 2 narrative standard in 7050.0150 in permits – namely by figuring out a way to "translate" the narrative standard into numeric effluent limits that can be applied to permitted facilities that discharge to Minnesota's waters. Key pollutants of concern that stakeholders have raised for potential development of translators are "salty" or ionic parameters (such as specific conductance and sulfate) and nitrate.

The MPCA agrees that clearer implementation procedures for the Class 2 narrative aquatic life standard are warranted. This document lays out those procedures, which may ultimately result in one or more of a wide range of permit conditions – ranging from monitoring requirements to effluent limits based on water quality conditions and goals. Although this document is specific to protecting aquatic life from salty parameters, a general process could be extrapolated to any pollutant likely to have an impact on aquatic life, depending on the available data and information. If numeric standards for protecting aquatic life are adopted through rulemaking, the translator process would no longer be needed for those pollutants.

There are some exceptions to the permitting framework described below. Waterbodies that are currently identified as impaired for chloride, are known to have naturally high background levels of chloride, or are determined to have chloride as the primary stressor will not be subject to this narrative translator, as aquatic life standards for chloride already exist.

Permitting Framework for Protecting Aquatic Life from Salty Parameters

The remainder of this document lays out a framework for implementing the Class 2 aquatic life narrative standard. The process is designed to identify the Class 2 waterbodies that are potentially impacted by ionic or salty parameters; and then support a case-specific determination of permit conditions necessary to ensure that the Class 2 aquatic life narrative standard is maintained.

Determining Waterbodies Impacted by Specific Conductance

The first step in the process is to determine those waterbodies most likely to have aquatic biology that is adversely impacted by salty pollutants, as indicated by specific conductance. Specific conductance was chosen as the surrogate indicator for multiple individual ionic pollutants.

Developing Metrics to Evaluate Impacts

First, specific conductance is a known stressor to aquatic life. Although the impact of a specific individual ion may be more important to certain aspects of the biological community, the generalized impact of specific conductance to the biological community and aquatic ecosystem health is well documented (Cañedo-Argüelles, et. al. 2013, Dunlop, et. al. 2008, Nielsen, et. al., 2003) . Second, while it would be

[1] More information can be found in EPA's Water Quality Standards handbook, chapter 3.

ideal to have indicators reflective of individual ions, or ion mixtures, these standards are not yet available, and even when available they may not be sensitive to all life stages of sensitive native taxa. Third, conductivity is well known to be correlated with anthropogenic stress, including urban development, agriculture, and mining activity. The ion mixture associated with each of these disturbance categories may differ, but, again, the generalized impact of conductivity is well documented. Finally, conductivity is one of the most commonly collected water quality parameters, and the MPCA has a very large dataset in which both biological data and specific conductance are collected concurrently. This large dataset has allowed for a robust approach to the development of tools to support this narrative translator, including calculation of regional benchmarks, as well as developing the relationship between aquatic life use support and conductivity.

The MPCA collects biological and water quality data throughout the state to determine if waterbodies are meeting aquatic life use goals. The primary biological indicators used in assessment of aquatic life are fish and macroinvertebrates. Macroinvertebrates are well known to be sensitive to many of the constituent ions that comprise specific conductance, and thus are the focus of this screening tool (Clements and Kotalik, 2015; Kefford, 1998; Hart et. al., 1990).

To determine if a waterbody is potentially adversely impacted by specific conductance, the MPCA proposes a weight of evidence approach that considers three metrics that represent different ways of looking at the relationship between specific conductance and biological response. All metrics were considered based on the last 10 years of information, in keeping with MPCA's assessment window.

1. **MIBI** - The macroinvertebrate index of biotic integrity (MIBI) scores that are used in assessing aquatic life in rivers and streams. The MIBI was designed and calibrated to be an indicator of overall stress on the biological community, and is therefore our ultimate endpoint in determining if anthropogenic stressors are impacting aquatic life. It was not designed to respond to any one stressor, but it is capable of showing a response to a single stressor, if that stressor is the overwhelming influence impacting aquatic health. When attempting to understand if the aquatic life of a stream is being impacted by a suspected stressor, the first step is to look at the MIBI score.

2. **Conditional Probability** - A conditional probability approach based on a relationship between specific conductance and attainment of the MIBI General Use criterion. The conditional probability model was developed to reflect the extent to which conductivity measurements may be in alignment with impairment of the biological community, and allow us to make an inference about the potential impact of specific conductance when biological data is not available.

3. Regional Benchmarks - Regional benchmarks based on the Criterion Continuous Concentrations (CCC). - An approach comparing measures of specific conductance to draft "benchmark" values that were calculated using a field-based method for the determination of water quality criteria (Cormier and Suter, 2013; US EPA, 2011). The benchmark values were developed as ecotoxicological endpoints to reflect the response of taxa that are sensitive to specific conductance. These values represent the point at which 5% of sensitive taxa are no longer present. These benchmark values were calculated for the purpose of supporting waterbody screening using data collected by the MPCA biological monitoring program from 1996 through 2018.

Evaluating Waterbodies Based on Metrics

After developing these three metrics, the MPCA reviewed individual waterbodies (lakes and stream reaches) and analyzed their conditions relative to each of the three metrics. A summary of the evaluation is provided in Attachment 1.[2]

1) Attainment of aquatic life use based on macroinvertebrate index of biotic integrity (MIBI) scores.

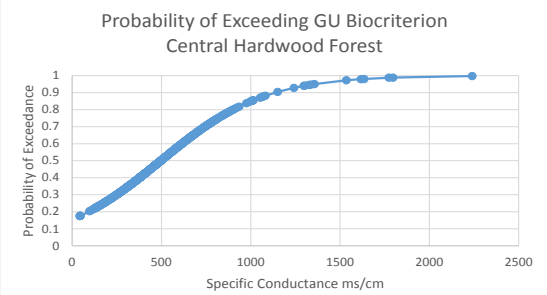
The MPCA currently has biological indicator data collected from 6800 monitoring locations, representing 3390 waterbodies, or stream segments, throughout Minnesota. Each waterbody is assigned a reference number called the Waterbody Identification number, or WID; there may be multiple monitoring locations within a WID.

The MPCA regularly assesses waterbodies to determine whether they fully support the aquatic life beneficial use based on fish and macroinvertebrate indices of biotic integrity (MIBI) scores. Assessment of biological condition is done at the waterbody level, and is the result of a weight of evidence approach that considers all assemblage-specific information collected in the 10-year window associated with the assessment. The MPCA's detailed methods for assessment can be found in the *Guidance Manual for Assessing the Quality of Minnesota Surface Waters for Determination of Impairment: 305(b) Report and 303(d) List.*

When considering the potential for adverse impacts of specific conductance on aquatic life, aquatic life use support can be analyzed at both the waterbody level (WID), or reach level. Initial screening of aquatic life use should be done based on waterbody level assessment results. Reach level information can be analyzed if a more granular approach is needed to determine impacts of specific conductance on aquatic life.

2) Conditional probability of meeting general aquatic life use (GU) goals based on measurements of specific conductance.

Graph 1. Example conditional probability plot



Binary logistic regression was used to determine the probability of meeting the macroinvertebrate index of biotic integrity (MIBI) general use biocriterion based on measured values of specific conductance, for the purpose of determining potential biological impacts in areas where no biological data was present. Binary logistic regression is a modeling tool used to determine the probability of a binary event occurring (pass/fail) for a given predictive variable. In this case, that is the probability of meeting the biological standard, as demonstrated by the MIBI, based on the known specific conductance data. Conditional probability equations were derived based on datasets grouped at the level 3 ecoregion. Pass/fail outcomes were based on support/non-support of the relevant station-specific biocriterion; the predictive variable used was specific conductance. Coefficient values, constant values, and the

[2] This data is available in tabular format to allow for a straightforward interpretation of both summarized and site-specific data. It can be provided in more detail upon request.

equation used in the calculation of regional conditional probabilities are included below in Table 1.

Measures of specific conductance and associated conditional probabilities can be considered at both the waterbody and station levels. Aggregating specific conductance data at the waterbody level is done by taking the average values by month/year when multiple data points are present. Site specific and daily values are available for a more granular approach to understanding waterbody conditions. Similar to waterbody values, site based specific conductance values are averaged values by month/year when multiple data points are present.

The logistic regression outputs for most ecoregions suggest that a more conservative (high) value be used to infer a likelihood of impairment for any given waterbody. For the purposes of this tool, any waterbody or station with a conditional probability value of 75% or higher should be flagged for further investigation of biological stress related to specific conductance.

Note on use of ecoregions. Ecoregions are biogeographic regions that reflect a recurring pattern of ecosystems associated with a characteristic combination of geology, soil, landform, vegetation, climate, land use, wildlife, and hydrology (Omernik 1987, 1995). Ecoregions are defined at four, hierarchical levels. Level 3 ecoregions are commonly used by the EPA and other states to define regions for the development of water quality criteria (EPA, 2019). Minnesota has seven level three ecoregions.

3) Attainment of regionally derived benchmarks for specific conductance .

Criterion continuous concentration (CCC) values are intended to be used as a surrogate for chronic (long-term) exposure criteria and are designed to be protective of 95% of the native genera for a region. CCCs were derived at the level 3 ecoregion level from a field-based relationship between specific conductance and macroinvertebrate data (U.S. EPA, 2011; Cormier and Suter, 2013; Cormier, Zheng, and Flaherty, 2018). Regional benchmarks based on updating these CCCs were calculated by the MPCA using a statewide dataset collected by its biological monitoring program from 1996-2018. CCCs are based on the derivation of two relationships, one at the genus level and one at the community level. The genus-based relationship identifies the extirpation concentration (XC_{95}) for specific conductance for each genus in the ecoregion. The XC_{95} is the specific conductance value associated with the 95^{th} percentile of the distribution of occurrence of each genus. The community level relationship identifies the 5^{th} percentile hazard concentration (HC_{05}), and is the value used for the CCC. The HC_{05} is based on the cumulative rank distribution of XC95 values for the region. It reflects the specific conductance value that is protective of 95% of native regional macroinvertebrate genera. The taxa that disappear first are those considered most sensitive to increases in specific conductance. For each ecoregion, sensitivity values were determined for each genera that occurred a minimum of 20 times. These values can be made available for a more refined analysis of community level data at the site specific level.

These CCCs serve as regional benchmarks used to interpret measures of specific conductance. These values are present in the summary table, and are listed in Table 1 below.

Table 1. Regional specific-conductance benchmarks, regional coefficient and constant values, and equation for calculation of conditional probabilities.

		Coefficients and Constants for Conditional Probability Calculations	
Minnesota Ecoregion	Regional Benchmark For Specific Conductance	Coefficient	Constant
46 – Northern Glaciated Plains	1333 µS/cm	0.001021	0.095666
47 - Western Cornbelt Plain	1117 µS/cm	0.001349	0.080323
48 – Lake Agassiz Plain	859 µS/cm	0.002758	-2.06005
49 – Northern Minnesota Wetlands	405 µS/cm	0.003147	-1.74711
50 – Northern Lakes and Forests	329 µS/cm	0.001938	-1.40971
51 – North Central Hardwood Forests	488 µS/cm	0.003426	-1.70203
52 – Driftless Area	628 µS/cm	0.003886	-2.71473
		Conditional Probability Equation CB = 1/(1+EXP(-(coefficient*SC)-constant)))	

Using these three metrics allows the MPCA to determine those waterbodies that are potentially experiencing aquatic life impacts due to salty parameters.

The clearest demonstration of impacts is a failing MIBI score. Those waterbodies where the MIBI scores indicate that the aquatic life use is not fully supported can be further reviewed using estimates of conditional probability and regional benchmarks, to determine if conductivity is likely to be the reason for the concern. If the conditional probabilities suggest a high likelihood (i.e. > 75%) that the specific conductance levels would cause the waterbody to "fail" the general use biocriterion and/or the specific conductance is above the regional benchmark, then the waterbody should be further investigated at the station level to determine if specific conductance values are problematic throughout the waterbody.

If no MIBI score is available, then reviewing the conditional probability and specific conductance compared to the benchmark alone will provide an indication. Prior to reaching conclusions about the impacts of specific conductance, it should be determined if there is additional information available. For instance, a stressor identification report for the associated waterbody could provide a more detailed assessment of the specific stressors on the aquatic community, perhaps differentiating between specific conductance and other pollutants. Similarly, if a biological effluent review has been completed for any effluent present in the waterbody it may describe potential impacts related to an effluent, and may identify potential causes. More detail is provided in the next section as to how additional information may be used or gathered, if deemed necessary for the next steps.

Note on this evaluation and aquatic life use goals. When assessing streams for aquatic life, two different approaches are used in the determination of appropriate aquatic life use goals.

For streams in which biological and habitat data have been collected, each waterbody segment is given a use class based on the tiered aquatic life use (TALU) approach (MPCA, 2016). TALU

criteria differ based on habitat, channel, and biological characteristics. This use class approach is only applied to the direct interpretation of biological data. When interpreting MIBI scores in the context of aquatic life use support, it is best to maintain the tiered use approach, as this is ultimately the manner in which aquatic life use support is determined. Therefore, for waterbodies in which biological data was available, review of biological condition was done using the weight of evidence-based assessment and associated tiered aquatic life use (TALU) criterion.

When assessing aquatic life use based on non-biological water quality parameters, there is typically only a single use applied, the general use (GU). The general use is the middle tier in the tiered use approach; prior to the implementation of the TALU approach the general use was the only use applied to biological data. When making translations between specific conductance and aquatic life use for the conditional probability model, it was determined that it would best to make the general use the benchmark for comparing biological data and specific conductance. Therefore, conditional probabilities were developed using the TALU general use criteria, which makes no provision for habitat or stream channel modifications, and is way to compare all stream segments similarly. The water quality benchmarks could be considered as a surrogate for water quality criteria, and as a means to compare regional water quality conditions to a level of pollution that is likely protective of aquatic life.

Identifying Dischargers

If available indicators point to a potential problem with specific conductance for a waterbody, then a plan needs to be developed for approaching permitting for sources that discharge to those waters.

Commented [NC(1]: The focus would be on direct or nearby dischargers. Should this decision be case by case, or should MPCA consider some kind of threshold?

The next step is to identify dischargers and determine which dischargers are likely to be discharging levels of ionic pollutants that are contributing to high levels of specific conductance. If dischargers are unlikely to be contributing to high levels of specific conductance (demonstrated either through monitoring of their effluent or based on knowledge of the type of discharger), those dischargers may not need to be further evaluated.

Some dischargers in Minnesota do monitor for levels of ions in their effluent, and we have general knowledge of the types of industries and activities that are likely to have high ionic strength effluent. Based on data currently available, looking at:

- Facilities with elevated effluent salt concentrations; and
- Facilities with likely ions in their discharge and that have a continuous wastewater discharge to low dilution ratio stream.

Commented [NC(2]: We continue to consider what might be appropriate to identify "elevated effluent salt concentrations" in a way that focuses on the dischargers of highest concern. We would likely have values for both TDS and SC as more facilities monitor for TDS.

Options:
- 1500 mg/L TDS or 2200 Specific Conductance (levels that indicate likely concern for WET)
- 1330 SC (the highest benchmark)
- The regional benchmark

The MPCA has developed an initial list (Attachment 2) of facilities that are discharging to waterbodies that are potentially impacted by specific conductance and that have effluent characteristics that mean they are likely contributing to the levels of specific conductance.

This list is based on current information, and other dischargers – or new facilities – that meet the requirements may also need to be considered in this process. It is particularly likely that facilities that do not currently monitor ions are not on the list of dischargers.

Permitting Process

In these cases, a permitting plan will be developed to, as needed, refine our understanding of the sources and impacts of specific conductance in the waterbody and determine what actions need to be

taken to help improve conditions. We intend to focus on individual permit holders, not those with general permits. Once the MPCA has identified a facility with the potential to discharge salts that may negatively impact aquatic life, further evaluation and appropriate permit conditions will be considered during the process of the next permit issuance.

When a permit for one of the dischargers identified above is being revised (or if a new permit is being issued for a discharge including ions that impacts one of the identified water bodies), the MPCA's permitting process will consider the need to review and gather additional information. If information to complete the types of analyses listed in the "additional analysis and review" column is not available, a first step may be to establishing permit conditions to require collection of additional information. The MPCA may also establish permit conditions or a permit limit for specific conductance (or one or more of the pollutants that contribute to specific conductance) in order to protect aquatic life.

Potential actions that could be taken during permitting would depend on the condition of the waterbody and the characteristics of the permitted facility.

MPCA envisions a transparent process that includes engagement with the permittee, Tribes, and stakeholders or interested parties. That process will include a case-by-case evaluation, depending on the specific situation and the characteristics of the permitted facility. In some cases, limits required for other standards or other reasons may be deemed sufficient to protect aquatic life in the identified reaches where specific conductance may be a concern. In some cases, more data gathering and monitoring may be needed. Or, permit conditions that limit specific conductance (or a component thereof) may be needed to ensure aquatic life is protected.

The following table lays out some potential actions based on conditions.

Waterbody Conditions	Additional Analysis and Review	Effluent Conditions	Permit Options (If Needed After Additional Analysis)
Clear Concern • IBI score – failing/ impaired • Conditional probability – high (> 75%); **and** • Regional Benchmark – exceeded	• Biological assessment - Could the facility's effluent be a potential cause or contributor to water or biological quality? What watershed and local conditions might be causing a less than optimal biological condition? Have stressor ID reports investigated listed impairments? • Natural Background Review – How do downstream specific conductance/ions levels compare to background? • What permit limits are being imposed (e.g. chloride limit; antidegradation limits or caps)? Will they limit ions in the discharge?	Known – High ions	• Permit limit based on regional benchmark • Pollutant investigation and minimization plan • Ongoing biological and/or chemical monitoring
		Known – Low ions	• Ongoing biological and/or chemical monitoring
		Unknown – Likely high ions	• Effluent monitoring • Pollutant investigation and minimization plan • Ongoing biological and/or chemical monitoring • Discharge cap
		Unknown – Likely low ions	• Effluent monitoring
Probable Concern • IBI score – failing/ impaired • Conditional probability – high (> 75%); **or** • Regional Benchmark – exceeded	• Biological assessment - Could the facility's effluent be a potential cause or contributor to water or biological quality? What watershed and local conditions might be causing a less than optimal biological condition? Have stressor ID reports investigated listed impairments?	Known – High ions	• Ongoing biological and/or chemical monitoring • Pollutant investigation and minimization plan
		Known – Low ions	• One-time biological and/or chemical monitoring

Waterbody Conditions	Additional Analysis and Review	Effluent Conditions	Permit Options (If Needed After Additional Analysis)
	• Natural Background Review – How do downstream specific conductance/ions levels compare to background? • What permit limits are being imposed (e.g. chloride limit; antidegradation limits or caps)? Will they limit ions in the discharge?	Unknown – Likely high ions	• Effluent monitoring • Ongoing biological and/or chemical monitoring • Pollutant investigation and minimization plan
		Unknown – Likely low ions	• Effluent monitoring
Potential Concern • IBI score – not available • Conditional probability – high (> 75%); **and** • Regional Benchmark – exceeded	• Biological assessment - Could the facility's effluent be a potential cause or contributor to water or biological quality? What watershed and local conditions might be causing a less than optimal biological condition? Have stressor ID reports investigated listed impairments? • Natural Background Review – How do downstream specific conductance/ions levels compare to background? • What permit limits are being imposed (e.g. chloride limit; antidegradation limits or caps)? Will they limit ions in the discharge?	Known – High ions	• Ongoing biological and/or chemical monitoring
		Known – Low ions	• Likely none
		Unknown – Likely high ions	• Effluent monitoring • Ongoing biological and/or chemical monitoring
		Unknown – Likely low ions	• Likely none
Possible concern • IBI score – not available	• Biological assessment - Could the facility's effluent be a potential cause or contributor to water or biological quality? What watershed and local	Known – High ions	• One-time Biological data gathering

Waterbody Conditions	Additional Analysis and Review	Effluent Conditions	Permit Options (If Needed After Additional Analysis)
• Conditional probability – high (> 75%); **or** • Regional Benchmark – exceeded	conditions might be causing a less than optimal biological condition? Have stressor ID reports investigated listed impairments? • Natural Background Review – How do downstream specific conductance/ions levels compare to background? • What permit limits are being imposed (e.g. chloride limit; antidegradation limits or caps)? Will they limit ions in the discharge?	Known – Low ions	• Likely none
		Unknown – Likely high ions	• Effluent monitoring
		Unknown – Likely low ions	• Likely none

The following text provides additional detail and further description of the items in the table:

Additional Analysis and Review

- *Biological Assessment*. For facilities identified as potentially impacting aquatic life by a salty discharge, MPCA staff should conduct a biological effluent review as part of the permit process. Part of the focus should be on checking and confirming the conditions that led to the inclusion of the waterbody and facility on this list. The information provided in this document is based on a high- level screening of specific conductance. Additional site-specific information could be evaluated to make a more complete assessment of the biology and whether the narrative standard is being met.

  The MPCA's guidance to staff working on a biological effluent limit review is to consider some of the following - *Could any of the effluent discharge parameters be a potential cause or contributor to water or biological quality? How does the downstream station(s) compare with upstream or adjacent stations? What watershed and local conditions might be causing a less than optimal biological condition downstream of the facility? Is the watershed highly disturbed (e.g., landuse, channelization, feedlots)? Is the habitat in fair-poor condition and might be a limiting factor? Does the water chemistry indicate an issue? Also look for stressor ID reports that may have investigated listed impairments.*

  MPCA staff should work on evaluation of additional available information in order to improve understanding of the biological condition and likely stressors downstream of the facility, to demonstrate the need for a permit condition. If sufficient data is not available, collection of such data may be required as part of the permit.

- *Natural Background Review.* Some parts of Minnesota have naturally higher ions. Although the regionally-based specific conductance benchmarks used in the screening may account for, the situation should be considered to determine if the facility is the cause of impact.

- *Possible Impact of Other Permit Limits.* Facilities may be receiving permit limits based on other rules or processes. These limits should be evaluated to determine if they are sufficient to mitigate the facility's impact on aquatic life from specific conductance. Specific items to review include:
  - Evaluation of downstream water quality standards and development of needed effluent limits to protect those downstream waters.
    - Minnesota rules require protection of downstream waters, including waters of other states or tribes that have different water quality standards. If a limit is needed to protect a specific conductance or other salty parameter standard for a downstream state, that limit may be sufficient to mitigate any potential harm from specific conductance in a more local waterbody.
  - Antidegradation analysis and review, where applicable, and any resulting effluent limits.
    - A new or expanding source that is likely to result in a net increase in loading or other causes of degradation needs to conduct an antidegradation review and analysis. The analysis needs to ensure the maintenance of all existing uses. If a permit limit for a salty parameter is needed to ensure that existing uses are maintained, that limit may be sufficient to mitigate concerns about the impacts of specific conductance. Some facilities may accept a limit – often a mass cap

limit - in order to avoid going through an antidegradation review. Again, such a limit might be sufficient.

- Evaluation of other needed limits, especially chloride. In many cases, facilities have high levels of multiple ions and actions needed to control one – such as chloride – will serve to reduce all of them.

Effluent Conditions

Some dischargers in Minnesota monitor for levels of ions in their effluent, and we have general knowledge of the types of industries and activities that are likely to have high ionic strength effluent. These include: mining, food processing, and similar industries. In reviewing facilities for potential permit conditions under this protocol, MPCA staff will consider the available information about the facility's discharge including 1) whether they have monitored elevated effluent salt concentrations; 2) whether they are likely to have such concentrations but are unmonitored; and 3) the likely impact based on the facility's discharge (continuous or not) and the size of the receiving water (low dilution ratio).

Permit Options (If Needed After Additional Analysis)

The additional analysis and review may demonstrate that one or more permit conditions are needed in order to ensure that the facility is not causing or contribution to conditions that violate the narrative biological standard. Potential permit conditions, which could be imposed individually or in conjunction, could include:

- Monitoring
  - If biological data is lacking in the waterbody of concern, or if existing data is more than 10 years old, then biological data may need to be collected in the location or locations that best represent the waterbody and help refine our understanding of potential local impacts, stressors, and enable calculation of an IBI. Data collection may also be required on some kind of ongoing basis to ensure conditions do not degrade.
    - Collection of biological data to date has been done almost solely by MPCA. MPCA would work with permittees to determine the most appropriate way to collect data – whether that be direct collection by MPCA, with the permittee providing any necessary access to the waterbody, or for MPCA to provide guidance and information to ensure that the permittee can collect the data.
  - There may also be a need to collect water chemistry data paired with the biological data, or as a standalone to verify previously collected MPCA data. Again, this may be one time or ongoing.
  - A facility may be required to monitor their effluent for specific conductance or a suite of salty parameters, to better determine their likely impact on the receiving water.
- Pollutant investigation and minimization
  - Facilities may be require to take actions to understand and minimize their pollution, without a specific numeric effluent limit. These actions would be similar to those the MPCA has recommended for facilities that have applied for a chloride variance. (See https://www.pca.state.mn.us/sites/default/files/wq-wwprm2-71.pdf) Facilities would investigate the specific sources of ionic pollutants in their discharge, and develop a minimization plan.
- Numeric effluent limits

- In cases where the evaluation shows that the facility may be causing or contributing to a biological impairment and the need is to prevent conditions from worsening, the effluent limit may be a cap on specific conductance or other ionic pollutant (either a specific individual ion or another appropriate related indicator, such as TDS), limiting pollution to current levels.
    - This may be based on best operation of any existing pollution control equipment – which could also be coupled with requirements to continue to work to minimize pollution.
- In cases where the evaluation clearly shows that the facility is causing or contributing to a biological impairment, the permit conditions would include specific effluent limits, likely to be based on meeting a specific water quality value for a given pollutant, which may be based on existing benchmark or criteria values or established as a site-specific standard.

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Attachment 1: Waterbodies of Concern

Commented [NC(3]: MPCA is still reviewing the data to ensure the queries that pulled it are correct. We are also considering what is the best way to provide summary information here in this document – we can provide a more detailed spreadsheet on request. The key question is how to summarize multiple years of data on one WID. Also, is it necessary to show the specific conductance levels here, or the column with assessment (given the way we are splitting up tables). Input would be appreciated.

Waterbodies With "Clear Concern"

- IBI score – failing/ impaired
- Conditional probability – high (> 75%); **and** Regional Benchmark – exceeded

Waterbody Name	WID	Sample Year	Assessment Year	WID Bio-Assessment	Exceed Regional Benchmark	Probability of Exceeding Biocriterion
Unnamed creek	07010202-657	2010	2020	EXS	Exceeds	77.09
Little Minnesota River	07020001-508	2015	2017	EXS	Exceeds	84.16
Emily Creek	07020001-547	2015	2017	EXS	Exceeds	92.00
Unnamed creek (Meadowbrook Creek)	07020001-568	2015	2017	EXS	Exceeds	86.31
Unnamed creek	07020001-570	2015	2017	EXS	Exceeds	83.89
Fish Creek	07020001-571	2015	2017	EXS	Exceeds	86.85
Emily Creek	07020001-576	2015	2017	EXS	Exceeds	92.25
Lazarus Creek (Canby Creek)	07020003-508	2015	2017	EXS	Exceeds	86.15
Lazarus Creek	07020003-509	2015	2017	EXS	Exceeds	84.25
Lac qui Parle River, West Branch	07020003-513	2015	2017	EXS	Exceeds	84.03
Lost Creek	07020003-517	2015	2017	EXS	Exceeds	85.32
Crow Timber Creek	07020003-520	2015	2017	EXS	Exceeds	86.29
County Ditch 34	07020003-526	2015	2017	EXS	Exceeds	83.90
Unnamed creek	07020003-567	2015	2017	EXS	Exceeds	86.62
Unnamed ditch	07020003-570	2015	2017	EXS	Exceeds	90.88
Unnamed ditch	07020003-575	2015	2017	EXS	Exceeds	92.92
Unnamed creek	07020003-580	2015	2017	EXS	Exceeds	89.94
Unnamed ditch (County Ditch 4)	07020003-582	2015	2017	EXS	Exceeds	92.17
Cobb Creek	07020003-583	2015	2017	EXS	Exceeds	94.57
Unnamed creek	07020003-588	2015	2017	EXS	Exceeds	91.43
Judicial Ditch 10	07020004-518	2010	2020	EXS	Exceeds	87.15
County Ditch 37 (1)	07020004-531	2010	2020	EXS	Exceeds	83.91
Unnamed ditch	07020004-539	2010	2020	EXS	Exceeds	88.48

Yellow Medicine River, North Branch	07020004-542	2010	2020	EXS	Exceeds	84.76
Unnamed creek	07020004-545	2010	2020	EXS	Exceeds	88.86
Judicial Ditch 10 (Wood Lake Creek)	07020004-546	2010	2020	EXS	Exceeds	85.01
Unnamed creek	07020004-564	2010	2012	EXS	Exceeds	86.01
Spring Creek	07020004-588	2010	2020	EXS	Exceeds	83.54
Judicial Ditch 17	07020004-622	2010	2020	EXS	Exceeds	88.16
County Ditch 4	07020004-663	2010	2020	EXS	Exceeds	95.12
County Ditch 17A	07020004-678	2010	2020	EXS	Exceeds	90.27
County Ditch 11	07020004-689	2010	2020	EXS	Exceeds	90.72
County Ditch 48	07020004-697	2010	2020	EXS	Exceeds	90.50
Unnamed creek	07020004-710	2010	2020	EXS	Exceeds	86.93
County Ditch 39	07020004-713	2010	2012	EXS	Exceeds	87.12
County Ditch 6A	07020004-714	2010	2020	EXS	Exceeds	87.76
County Ditch 37	07020004-724	2010	2020	EXS	Exceeds	91.51
Unnamed ditch	07020004-725	2010	2020	EXS	Exceeds	88.26
County Ditch 31	07020004-727	2010	2020	EXS	Exceeds	90.44
Judicial Ditch 8	07020004-728	2010	2020	EXS	Exceeds	93.65
Unnamed ditch	07020004-732	2010	2020	EXS	Exceeds	86.64
County Ditch 16	07020004-734	2010	2020	EXS	Exceeds	86.34
County Ditch 31	07020004-737	2010	2020	EXS	Exceeds	85.33
Redwood River	07020006-501	2017	2019	EXS	Exceeds	84.97
Redwood River	07020006-502	2010	2019	EXS	Exceeds	84.24
Redwood River	07020006-502	2017	2019	EXS	Exceeds	85.70
Redwood River	07020006-503	2017	2019	EXS	Exceeds	85.80
Unnamed creek	07020006-558	2017	2019	EXS	Exceeds	86.78
Threemile Creek	07020006-564	2017	2019	EXS	Exceeds	86.41
Clear Creek	07020006-568	2017	2019	EXS	Exceeds	85.76
Unnamed creek	07020006-573	2017	2019	EXS	Exceeds	91.53
County Ditch 60	07020006-578	2017	2019	EXS	Exceeds	91.77
Minnesota River	07020007-723	2014	2016	EXS	Exceeds	75.32

Cottonwood River	07020008-502	2017	2019	EXS	Exceeds	83.70
Cottonwood River	07020008-503	2017	2019	EXS	Exceeds	85.73
Unnamed ditch	07020008-569	2017	2019	EXS	Exceeds	90.60
Unnamed creek	07020008-573	2017	2019	EXS	Exceeds	90.24
Unnamed creek	07020008-574	2017	2019	EXS	Exceeds	84.29
Unnamed creek	07020008-576	2017	2019	EXS	Exceeds	84.62
Unnamed creek	07020008-581	2017	2019	EXS	Exceeds	83.62
Unnamed creek	07020008-593	2017	2019	EXS	Exceeds	82.04
Unnamed creek	07020008-615	2017	2019	EXS	Exceeds	85.48
Judicial Ditch 22	07020008-617	2017	2019	EXS	Exceeds	88.02
Rush River	07020012-548	2014	2016	EXS	Exceeds	84.17
County Ditch 50	07020012-796	2014	2016	EXS	Exceeds	76.57
Nine Mile Creek	07020012-808	2014	2016	EXS	Exceeds	92.06
Unnamed creek	07020012-822	2014	2016	EXS	Exceeds	96.91
Okabena Creek	07100001-602	2014	2016	EXS	Exceeds	88.98
Unnamed creek	07100001-672	2014	2016	EXS	Exceeds	83.27
Rabbit River	09020101-502	2010	2012	EXS	Exceeds	89.52
Mustinka River	09020102-506	2010	2019	EXS	Exceeds	81.55
Eighteenmile Creek	09020102-508	2010	2012	EXS	Exceeds	96.77
Judicial Ditch 4	09020102-512	2010	2019	EXS	Exceeds	81.23
Twelvemile Creek	09020102-514	2010	2012	EXS	Exceeds	94.29
Unnamed creek	09020102-538	2010	2012	EXS	Exceeds	95.75
Twelvemile Creek	09020102-557	2010	2012	EXS	Exceeds	90.61
Unnamed creek	09020102-561	2010	2019	EXS	Exceeds	81.41
Whiskey Creek	09020104-520	2019	2011	EXS	Exceeds	93.41
Buffalo River, South Branch	09020106-505	2019	2011	EXS	Exceeds	79.95
County Ditch 25	09020106-538	2019	2018	EXS	Exceeds	99.99
Unnamed creek	09020106-544	2019	2018	EXS	Exceeds	87.49
County Ditch 5 (County Ditch 8)	09020106-563	2019	2018	EXS	Exceeds	97.20
Buffalo River, South Branch	09020106-605	2019	2018	EXS	Exceeds	82.99

County Ditch 3	09020106-615	2019	2018	EXS	Exceeds	92.43
County Ditch 10	09020106-619	2019	2018	EXS	Exceeds	99.92
Beau Gerlot Creek	09020305-652	2015	2016	EXS	Exceeds	76.46
Snake River	09020309-504	2015	2015	EXS	Exceeds	95.64
Unnamed creek (County Ditch 27)	09020311-565	2010	2018	EXS	Exceeds	89.24
Split Rock Creek	10170203-509	2011	2013	EXS	Exceeds	83.75
Unnamed creek	10170203-551	2011	2020	EXS	Exceeds	83.19

Waterse of Probable Concern

- IBI score – failing/ impaired
- Conditional probability – high (> 75%); **or** Regional Benchmark – exceeded

Waterbody Name	WID	Sample Year	Assessment Year	WID Bio-Assessment	Exceed Regional Benchmark	Probability of Exceeding Biocriterion
Robert Creek	07020012-575	2010	2016	EXS	Exceeds	74.87
Rogers Creek	07020007-547	2010	2015	EXS	Exceeds	74.58
Minnesota River	07020007-723	2015	2016	EXS	Exceeds	74.52
Nine Mile Creek, South Fork	07020012-723	2014	2016	EXS	Exceeds	74.45
Unnamed ditch	07020012-763	2014	2016	EXS	Exceeds	73.66
Silver Creek (County Ditch 13)	07010205-641	2012	2014	EXS	Exceeds	73.33
County Ditch 42	07020012-772	2014	2016	EXS	Exceeds	73.19
Unnamed creek	07040001-697	2018	2020	EXS	Exceeds	73.13
Rogers Creek	07020007-547	2013	2015	EXS	Exceeds	72.89
Jewitts Creek (County Ditch 19, 18, and 17)	07010204-585	2017	2019	EXS	Exceeds	72.36
Unnamed ditch	09020102-564	2010	2019	EXS	Exceeds	72.23
Bassett Creek	07010206-811	2010	2020	EXS	Exceeds	72.19
Unnamed creek	07020012-732	2015	2016	EXS	Exceeds	71.52
Raven Stream	07020012-716	2014	2016	EXS	Exceeds	71.27
County Ditch 2	09020306-515	2012	2014	EXS	Exceeds	71.22
Unnamed creek (Brewery Creek)	07020012-830	2014	2016	EXS	Exceeds	70.14
Unnamed creek	07010205-624	2012	2014	EXS	Exceeds	69.92
Unnamed creek (East Creek)	07020012-581	2014	2016	EXS	Exceeds	69.65
Straight River	07040002-515	2011	2013	EXS	Exceeds	69.38
County Ditch 43 (Judicial Ditch 75)	09020306-517	2012	2014	EXS	Exceeds	69.27
Unnamed creek	07010202-735	2010	2020	EXS	Exceeds	68.90
Le Sueur Creek	07020012-824	2015	2016	EXS	Exceeds	68.32
County Ditch 50	07020012-796	2017	2016	EXS	Exceeds	68.13
County Ditch 34	07020012-764	2014	2016	EXS	Exceeds	68.01
County Ditch 9	07010205-648	2012	2014	EXS	Exceeds	67.94
Buffalo Creek	07020012-832	2010	2016	EXS	Exceeds	67.85
Unnamed creek	07020012-768	2014	2016	EXS	Exceeds	67.75
Buffalo River, South Branch	09020106-505	2010	2011	EXS	Exceeds	67.72
Crow River, South Fork	07010205-511	2010	2014	EXS	Exceeds	67.46
Unnamed creek	07020012-732	2010	2016	EXS	Exceeds	67.15
Unnamed creek	07020012-798	2014	2016	EXS	Exceeds	66.96
Sand Creek	07010206-558	2010	2020	EXS	Exceeds	66.94
Unnamed creek	07010206-910	2010	2020	EXS	Exceeds	66.89
Unnamed creek	07020007-550	2013	2015	EXS	Exceeds	66.31

Nine Mile Creek	07020012-809	2014	2016	EXS	Exceeds	66.31
Sucker Creek	07010204-762	2017	2019	EXS	Exceeds	66.12
Bass Creek	07010206-784	2010	2020	EXS	Exceeds	64.92
Unnamed creek	07040002-529	2011	2020	EXS	Exceeds	64.65
Iosco Creek	07020011-576	2018	2010	EXS	Exceeds	64.57
Stony Creek	07010202-725	2018	2020	EXS	Exceeds	64.37
County Ditch 44	07010202-723	2018	2018	EXS	Exceeds	64.34
Pickerel Creek	07010103-590	2016	2017	EXS	Exceeds	64.25
Unnamed ditch (Anoka County Ditch 53-62)	07010206-559	2010	2020	EXS	Exceeds	64.18
Le Sueur Creek	07020012-824	2014	2016	EXS	Exceeds	63.78
Sand Creek	07020012-513	2014	2016	EXS	Exceeds	63.56
Crow River, South Fork	07010205-511	2014	2014	EXS	Exceeds	63.35
Battle Creek	07010206-592	2012	2020	EXS	Exceeds	63.23
Crow River, North Fork	07010204-503	2017	2010	EXS	Exceeds	63.21
Whitewater Creek	07040002-706	2011	2013	EXS	Exceeds	63.15
Chaska Creek	07020012-803	2014	2016	EXS	Exceeds	63.07
Ashley Creek	07010202-503	2019	2020	EXS	Exceeds	62.94
Robert Creek	07020012-575	2014	2016	EXS	Exceeds	62.49
Dutch Creek	07040002-572	2011	2015	EXS	Exceeds	62.47
Silver Creek	09020305-527	2016	2016	EXS	Exceeds	62.32
Barney Fry Creek	07020012-602	2014	2016	EXS	Exceeds	62.28
Unnamed creek (Spring Brook)	07040002-557	2011	2013	EXS	Exceeds	62.00
Battle Creek	07010206-592	2010	2020	EXS	Exceeds	61.67
County Ditch 10	07020012-628	2014	2016	EXS	Exceeds	61.50
Coon Creek	07010206-530	2010	2020	EXS	Exceeds	61.34
Mud Creek	07020005-554	2013	2011	EXS	Exceeds	61.30
Pickerel Creek	07010103-590	2015	2017	EXS	Exceeds	61.25
Crow River, South Fork	07010205-511	2012	2014	EXS	Exceeds	61.23
Buffalo Creek	07020012-832	2014	2016	EXS	Exceeds	60.93
Unnamed creek	07010202-613	2018	2010	EXS	Exceeds	60.89
Ashley Creek	07010202-503	2010	2020	EXS	Exceeds	60.89
Marsh River	09020107-503	2014	2016	EXS	Exceeds	60.79
Buffalo Creek	07010205-638	2012	2014	EXS	Exceeds	60.71
Unnamed creek	07010204-667	2017	2019	EXS	Exceeds	60.68
Crow River, South Fork	07010205-508	2012	2014	EXS	Exceeds	60.65
Credit River	07020012-811	2014	2016	EXS	Exceeds	60.63
Raven Stream, West Branch	07020012-842	2014	2016	EXS	Exceeds	60.48
Whitewater River, South Fork	07040003-F16	2015	2012	EXS	Exceeds	60.29
Crow River	07010204-502	2010	2019	EXS	Exceeds	60.19
South Bluff Creek	07010107-553	2011	2013	EXS	Exceeds	60.07
Cannon River	07040002-507	2013	2013	EXS	Exceeds	59.72

Getchell Creek (County Ditch 26)	07010202-727	2018	2018	EXS	Exceeds	59.33
Cannon River	07040002-507	2011	2013	EXS	Exceeds	59.04
Shanaska Creek	07020007-693	2013	2015	EXS	Exceeds	58.67
Forest Prairie Creek	07020012-725	2014	2016	EXS	Exceeds	58.64
Unnamed creek (Battle Creek)	07010204-758	2017	2019	EXS	Exceeds	58.58
Silver Creek	07020012-813	2014	2016	EXS	Exceeds	58.55
Cannon River	07040002-582	2011	2013	EXS	Exceeds	58.54
Pelican River	09020103-772	2017	2018	EXS	Exceeds	58.49
County Ditch 39	09020106-617	2019	2018	EXS	Exceeds	58.47
Wolf Creek	07030001-548	2010	2018	EXS	Exceeds	58.21
Riley Creek	07020012-511	2014	2016	EXS	Exceeds	58.17
Crow River	07010204-502	2017	2019	EXS	Exceeds	58.08
Little Chippewa River	07020005-713	2019	2011	EXS	Exceeds	58.05
Unnamed creek	07040002-724	2011	2020	EXS	Exceeds	57.96
Chub Creek	07040002-528	2011	2013	EXS	Exceeds	57.75
Credit River	07020012-811	2010	2016	EXS	Exceeds	57.58
County Ditch 2	07010206-522	2010	2020	EXS	Exceeds	57.53
Buffalo Creek	07010205-638	2014	2014	EXS	Exceeds	56.85
Shingle Creek (County Ditch 13)	07010206-506	2010	2020	EXS	Exceeds	56.78
Purgatory Creek	07020012-828	2014	2016	EXS	Exceeds	56.52
Elm Creek	07010206-508	2010	2020	EXS	Exceeds	56.36
Bevens Creek	07020012-514	2014	2016	EXS	Exceeds	56.07
Lateral Ditch 1 of State Ditch 95	09020312-521	2013	2015	EXS	Exceeds	56.00
Unnamed creek	07010108-595	2011	2013	EXS	Exceeds	55.73
Spring Creek	07030003-550	2010	2018	EXS	Exceeds	55.72
Silver Creek	09020305-527	2016	2016	EXS	Exceeds	55.50
Pelican Creek	07020002-506	2017	2010	EXS	Exceeds	55.02
Unnamed creek	04010201-551	2011	2011	EXS	Exceeds	54.84
Silver Creek	09020305-527	2015	2016	EXS	Exceeds	54.74
Rice Creek	07010206-584	2010	2012	EXS	Exceeds	54.72
Crow River, North Fork	07010204-556	2017	2010	EXS	Exceeds	54.65
Unnamed creek	07010108-600	2012	2019	EXS	Exceeds	54.63
Unnamed creek	07010108-595	2013	2013	EXS	Exceeds	54.56
Mud Creek	07020005-554	2018	2011	EXS	Exceeds	54.46
Unnamed creek	07010205-618	2012	2014	EXS	Exceeds	54.37
Picha Creek	07020012-579	2014	2016	EXS	Exceeds	54.25
Rush Creek, South Fork	07010206-760	2010	2012	EXS	Exceeds	54.08
Chippewa River	07020005-503	2019	2019	EXS	Exceeds	53.97
Mud Creek	07020005-554	2017	2011	EXS	Exceeds	53.84
Ashley Creek	07010202-503	2018	2020	EXS	Exceeds	53.78
Crow River	07010204-502	2015	2019	EXS	Exceeds	53.48

Diamond Creek	07010206-525	2010	2012	EXS	Exceeds	53.45
Crow River, North Fork	07010204-503	2018	2010	EXS	Exceeds	52.88
Silver Creek	09020305-527	2014	2016	EXS	Exceeds	52.66
Crow River, North Fork	07010204-506	2017	2010	EXS	Exceeds	52.57
Silver Creek	09020305-527	2015	2016	EXS	Exceeds	52.52
Zumbro River, South Fork	07040004-507	2012	2014	EXS	Exceeds	52.30
Crow River	07010204-502	2018	2019	EXS	Exceeds	52.16
Unnamed creek (East Swan Creek)	04010201-888	2013	2011	EXS	Exceeds	52.06
Washington Creek (County Ditch 9)	07010204-751	2017	2019	EXS	Exceeds	51.73
Unnamed creek	07010107-557	2011	2013	EXS	Exceeds	51.69
Sand Creek	07020012-840	2014	2016	EXS	Exceeds	51.63
Judicial Ditch 1	07010205-572	2012	2014	EXS	Exceeds	51.60
Mud Creek	07020005-551	2010	2011	EXS	Exceeds	51.26
Sauk River	07010202-505	2018	2010	EXS	Exceeds	51.13
Rush Creek	07010206-528	2010	2020	EXS	Exceeds	51.12
Unnamed ditch (Anoka County Ditch 4)	07010206-564	2010	2020	EXS	Exceeds	51.04
Heath Creek	07040002-521	2011	2015	EXS	Exceeds	51.04
Whitewater River, South Fork	07040003-F16	2010	2012	EXS	Exceeds	50.82
Cannon River	07040002-542	2012	2013	EXS	Exceeds	50.54
Mud Creek	07020005-554	2019	2011	EXS	Exceeds	50.50
Crow River, North Fork	07010204-556	2010	2010	EXS	Exceeds	50.40
Rush Creek, South Fork	07010206-732	2010	2012	EXS	Exceeds	50.23
Long Lake Creek	07010206-712	2010	2020	EXS	Exceeds	50.20
Silver Creek	09020305-527	2014	2016	EXS	Exceeds	49.89
Butler Creek	07040002-590	2011	2013	EXS	Exceeds	49.85
Hay Creek	09020314-505	2016	2017	EXS	Exceeds	47.63
Zippel Creek, West Branch (County Ditch 1)	09030009-515	2012	2014	EXS	Exceeds	47.28
Whitewater River, South Fork	07040003-F16	2012	2012	EXS	Exceeds	46.86
Silver Creek	09020305-527	2016	2016	EXS	Exceeds	46.55
Hay Creek	09020314-505	2015	2017	EXS	Exceeds	46.14
Little Cannon River (Goodhue County)	07040002-589	2011	2015	EXS	Exceeds	45.86
Severson Creek (County Ditch 23)	09020314-516	2016	2017	EXS	Exceeds	45.75
Two River, South Branch	09020312-505	2013	2015	EXS	Exceeds	45.69
Willow Creek	07040008-558	2018	2020	EXS	Exceeds	45.25
Unnamed creek	07040002-721	2011	2020	EXS	Exceeds	44.96
Watson Creek	07040008-552	2018	2020	EXS	Exceeds	44.82
Unnamed creek	07040004-579	2016	2014	EXS	Exceeds	44.62
Whitewater River, Middle Fork	07040003-515	2012	2012	EXS	Exceeds	44.56
Unnamed creek (Bloody Run Creek)	07040008-F08	2010	2020	EXS	Exceeds	44.31

Williams Creek	09030009-501	2012	2014	EXS	Exceeds	44.23
Little Cannon River (Goodhue County)	07040002-526	2011	2013	EXS	Exceeds	44.10
Willow Creek	07040008-558	2010	2020	EXS	Exceeds	43.99
Lateral Ditch 1 of State Ditch 95	09020312-539	2013	2015	EXS	Exceeds	42.95
Unnamed ditch	09030009-523	2012	2014	EXS	Exceeds	42.65
Kingsbury Creek	04010201-626	2012	2011	EXS	Exceeds	42.52
Unnamed ditch	09030009-523	2014	2014	EXS	Exceeds	42.18
Clear Creek	04010301-527	2011	2013	EXS	Exceeds	42.08
Pike Creek	09020302-521	2014	2016	EXS	Exceeds	41.56
Williams Creek	09030009-501	2010	2014	EXS	Exceeds	40.43
Kingsbury Creek	04010201-626	2019	2011	EXS	Exceeds	37.54
Rock Creek	04010301-508	2011	2013	EXS	Exceeds	34.89
Unnamed creek	07010207-667	2013	2015	EXS	Exceeds	33.30
Spring Creek	07010102-610	2012	2014	EXS	Exceeds	33.12
Hay Creek	07010104-682	2016	2018	EXS	Exceeds	32.64
Darrigans Creek	09020302-508	2016	2016	EXS	Exceeds	32.62
Elbow Creek	04010201-570	2011	2011	EXS	Exceeds	32.49
Beaver River, West Branch	04010102-577	2011	2013	EXS	Exceeds	32.45
County Ditch 18	07020004-651	2010	2020	EXS	Meets	83.00
Judicial Ditch 3	07020006-560	2017	2019	EXS	Meets	82.99
Unnamed creek	07020008-590	2017	2019	EXS	Meets	82.98
Unnamed creek	07100001-618	2014	2016	EXS	Meets	82.87
Devils Run Creek	07100001-668	2014	2016	EXS	Meets	82.86
Tenmile Creek	07020003-578	2015	2017	EXS	Meets	82.75
Lac qui Parle River, West Branch	07020003-516	2015	2017	EXS	Meets	82.67
County Ditch 8	07020004-650	2010	2020	EXS	Meets	82.60
Unnamed creek	07020008-529	2017	2019	EXS	Meets	82.60
Yellow Medicine River	07020004-513	2010	2012	EXS	Meets	82.60
Unnamed ditch	07020004-731	2010	2020	EXS	Meets	82.54
Lac qui Parle River	07020003-501	2015	2017	EXS	Meets	82.51
Willow Creek	07020008-551	2017	2019	EXS	Meets	82.46
County Ditch 33	07020006-529	2017	2019	EXS	Meets	82.37
Judicial Ditch 67	07010205-504	2012	2014	EXS	Meets	82.24
Redwood River	07020006-501	2010	2019	EXS	Meets	82.03
Dry Creek	07020008-520	2017	2019	EXS	Meets	81.99
Judicial Ditch 15	07020012-682	2014	2016	EXS	Meets	81.93
Stony Run Creek	07020004-580	2010	2020	EXS	Meets	81.86
County Ditch 38	07020008-557	2015	2019	EXS	Meets	81.75
County Ditch 119	07020004-687	2010	2012	EXS	Meets	81.72
County Ditch 31 (Chetomba Creek)	07020004-574	2010	2020	EXS	Meets	81.71

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Does not represent final Agency decisions

Tenmile Creek	07020003-577	2015	2017	EXS	Meets	81.53
Yellow Medicine River	07020004-513	2015	2012	EXS	Meets	81.52
County Ditch 59	07020004-677	2010	2020	EXS	Meets	81.51
Hawk Creek	07020004-568	2010	2020	EXS	Meets	81.32
Unnamed creek	07100001-626	2014	2016	EXS	Meets	81.26
Unnamed ditch	07020003-571	2015	2017	EXS	Meets	81.03
Wabasha Creek	07020007-527	2013	2015	EXS	Meets	81.00
Unnamed ditch	07020004-709	2010	2020	EXS	Meets	80.92
Judicial Ditch 32	07020006-540	2017	2019	EXS	Meets	80.86
Smith Creek (County Ditch 125A)	07020004-617	2010	2012	EXS	Meets	80.81
Sleepy Eye Creek	07020008-599	2016	2019	EXS	Meets	80.81
Canby Creek	07020003-557	2015	2017	EXS	Meets	80.81
Florida Creek	07020003-521	2015	2017	EXS	Meets	80.73
Unnamed creek	07020008-606	2010	2019	EXS	Meets	80.72
Judicial Ditch 12	07100001-666	2014	2016	EXS	Meets	80.61
Unnamed creek	07100001-625	2014	2016	EXS	Meets	80.46
County Ditch 36	07020004-716	2010	2012	EXS	Meets	80.36
Lac qui Parle River	07020003-501	2010	2017	EXS	Meets	80.29
Main Ditch	10170203-530	2011	2020	EXS	Meets	80.28
Sleepy Eye Creek	07020008-599	2017	2019	EXS	Meets	80.21
Butterfield Creek	07020010-516	2013	2015	EXS	Meets	80.20
Judicial Ditch 11	07020012-593	2014	2016	EXS	Meets	80.13
Unnamed ditch	07010205-630	2012	2014	EXS	Meets	80.07
Unnamed creek	10170204-541	2011	2020	EXS	Meets	80.01
Rush River	07020012-548	2014	2016	EXS	Meets	79.99
Unnamed creek	07020001-551	2015	2017	EXS	Meets	79.96
County Ditch 26	07020008-597	2017	2019	EXS	Meets	79.89
Unnamed creek	07100001-614	2014	2016	EXS	Meets	79.81
Unnamed creek	07100001-661	2015	2016	EXS	Meets	79.78
Threemile Creek	07020006-564	2017	2019	EXS	Meets	79.77
Judicial Ditch 13	07020007-717	2010	2015	EXS	Meets	79.47
Unnamed creek	07020002-534	2017	2019	EXS	Meets	79.42
Unnamed creek	07100001-661	2014	2016	EXS	Meets	79.35
Judicial Ditch 15	07010205-509	2012	2014	EXS	Meets	79.34
County Ditch 30A	07020012-801	2014	2016	EXS	Meets	79.34
County Ditch 124	07020007-711	2015	2015	EXS	Meets	79.32
County Ditch 38	07020008-557	2017	2019	EXS	Meets	79.31
County Ditch 37 (1)	07020004-531	2015	2020	EXS	Meets	79.23
Buffalo Creek	07010205-502	2012	2014	EXS	Meets	79.12
County Ditch 32A	07020012-783	2014	2016	EXS	Meets	79.11
Judicial Ditch 9	10230003-540	2011	2020	EXS	Meets	79.11

Unnamed ditch	07020004-733	2010	2020	EXS	Meets	79.10
Ramsey Creek	07020006-521	2017	2019	EXS	Meets	79.06
Ash Creek	10170204-540	2011	2020	EXS	Meets	79.05
Yellow Medicine River, North Branch	07020004-542	2010	2020	EXS	Meets	78.93
Wabasha Creek	07020007-699	2013	2015	EXS	Meets	78.92
Unnamed creek	07020010-583	2013	2015	EXS	Meets	78.92
Butterfield Creek	07020010-516	2015	2015	EXS	Meets	78.88
Judicial Ditch 26	07100001-523	2014	2016	EXS	Meets	78.85
Blood Run	10170203-555	2011	2013	EXS	Meets	78.84
Unnamed creek	07100001-624	2014	2016	EXS	Meets	78.80
Cottonwood River	07020008-502	2014	2019	EXS	Meets	78.70
County Ditch 11	10230003-538	2011	2020	EXS	Meets	78.67
Minnesota River	07020001-552	2015	2016	EXS	Meets	78.67
Minnesota River	07020004-749	2014	2016	EXS	Meets	78.65
Judicial Ditch 15 branch	07010205-628	2012	2014	EXS	Meets	78.58
Yellow Bank River	07020001-525	2018	2017	EXS	Meets	78.54
Cottonwood River	07020008-502	2017	2019	EXS	Meets	78.48
Unnamed creek	07020010-583	2015	2015	EXS	Meets	78.47
Birch Coulee Creek	07020007-587	2015	2015	EXS	Meets	78.42
Butterfield Creek	07020010-516	2014	2015	EXS	Meets	78.37
Watonwan River	07020010-510	2013	2015	EXS	Meets	78.37
Minnesota River	07020001-552	2014	2016	EXS	Meets	78.29
County Ditch 43 (Scheldorf Creek)	07100001-552	2014	2016	EXS	Meets	78.27
Unnamed creek	10170204-574	2011	2020	EXS	Meets	78.27
Unnamed creek	10170204-589	2011	2013	EXS	Meets	78.27
Unnamed creek	07020002-547	2017	2019	EXS	Meets	78.25
Judicial Ditch 98	07020009-610	2017	2019	EXS	Meets	78.24
Mud Creek	10170204-525	2011	2020	EXS	Meets	78.21
Dutch Charley Creek	07020008-518	2017	2019	EXS	Meets	78.17
County Ditch 38	07020008-557	2010	2019	EXS	Meets	78.17
Fourmile Creek	07100003-510	2016	2017	EXS	Meets	78.09
Minnesota River	07020004-747	2014	2016	EXS	Meets	77.96
Unnamed creek	07100003-529	2014	2016	EXS	Meets	77.96
Watonwan River, North Fork	07020010-564	2013	2015	EXS	Meets	77.94
Minnesota River	07020004-750	2014	2016	EXS	Meets	77.92
Judicial Ditch 2	07020002-549	2016	2019	EXS	Meets	77.88
Yellow Medicine River, North Branch	07020004-542	2015	2020	EXS	Meets	77.66
Lac qui Parle River	07020003-505	2015	2017	EXS	Meets	77.58
Unnamed creek	10170204-593	2011	2013	EXS	Meets	77.52
Pipestone Creek	10170203-501	2011	2013	EXS	Meets	77.50

Spring Creek	07020007-573	2013	2015	EXS	Meets	77.50
Unnamed creek	07020010-549	2013	2015	EXS	Meets	77.36
Yellow Bank River	07020001-525	2015	2017	EXS	Meets	77.34
Unnamed creek	10170204-587	2011	2020	EXS	Meets	77.33
Pipestone Creek	10170203-505	2011	2013	EXS	Meets	77.29
Pomme de Terre River	07020002-501	2018	2019	EXS	Meets	77.28
Unnamed creek	10170204-571	2011	2013	EXS	Meets	77.26
Unnamed creek	07100001-621	2014	2016	EXS	Meets	77.25
Watonwan River	07020010-511	2013	2015	EXS	Meets	77.19
Steward Creek (County Ditch 23)	07080203-504	2015	2017	EXS	Meets	77.19
Norwegian Creek	10170204-518	2011	2020	EXS	Meets	77.18
Kanaranzi Creek	10170204-516	2011	2013	EXS	Meets	77.13
County Ditch 15-2	07020011-609	2010	2020	EXS	Meets	77.10
Fourmile Creek	07100003-510	2014	2017	EXS	Meets	77.10
Coal Mine Creek	07020008-604	2017	2019	EXS	Meets	77.09
County Ditch 124	07020007-670	2013	2015	EXS	Meets	77.06
High Island Creek	07020012-653	2014	2016	EXS	Meets	77.03
Minnesota River	07020007-723	2014	2016	EXS	Meets	77.02
Brown Creek (Judicial Ditch 10)	07100002-502	2014	2016	EXS	Meets	77.00
Steward Creek (County Ditch 23)	07080203-504	2016	2017	EXS	Meets	76.98
Fritsche Creek (County Ditch 77)	07020007-709	2013	2015	EXS	Meets	76.97
Unnamed creek	10170204-572	2011	2013	EXS	Meets	76.96
Watonwan River, South Fork	07020010-568	2014	2015	EXS	Meets	76.92
County Ditch 49	07020012-677	2014	2016	EXS	Meets	76.92
Unnamed creek	07020008-606	2017	2019	EXS	Meets	76.91
County Ditch 52	07020007-636	2013	2015	EXS	Meets	76.86
Unnamed ditch	07020004-736	2010	2020	EXS	Meets	76.76
County Ditch 124	07020007-711	2013	2015	EXS	Meets	76.71
Judicial Ditch 13 (Skunk Creek)	10230003-511	2011	2020	EXS	Meets	76.70
Judicial Ditch 14 (Badger Creek)	07020009-568	2017	2019	EXS	Meets	76.62
Cottonwood River	07020008-502	2016	2019	EXS	Meets	76.61
Watonwan River, South Fork	07020010-568	2013	2015	EXS	Meets	76.59
County Ditch 24	07020008-550	2017	2019	EXS	Meets	76.59
Unnamed creek	10170204-575	2011	2020	EXS	Meets	76.58
Unnamed creek	10170204-588	2011	2013	EXS	Meets	76.55
Minnesota River	07020007-723	2015	2016	EXS	Meets	76.51
County Ditch 13	07020007-712	2013	2015	EXS	Meets	76.49
Unnamed creek	07020010-561	2013	2015	EXS	Meets	76.49
Little Rock Creek	10170204-511	2011	2013	EXS	Meets	76.41
Judicial Ditch 10	07020007-701	2013	2015	EXS	Meets	76.40
Unnamed creek	07020010-552	2013	2015	EXS	Meets	76.32

Sevenmile Creek	07020007-562	2015	2015	EXS	Meets	76.28
Chanarambie Creek, North Branch	10170204-560	2011	2013	EXS	Meets	76.26
Unnamed creek	07020004-595	2010	2012	EXS	Meets	76.23
County Ditch 3 (Judicial Ditch 9)	07020011-652	2018	2020	EXS	Meets	76.16
Perch Creek	07020010-524	2013	2015	EXS	Meets	76.14
Mound Creek	07020008-521	2017	2019	EXS	Meets	76.13
Unnamed creek	10170204-591	2011	2020	EXS	Meets	76.10
Perch Creek	07020010-524	2015	2015	EXS	Meets	76.06
Watonwan River	07020010-501	2013	2015	EXS	Meets	76.01
County Ditch 7A	07010205-631	2012	2014	EXS	Meets	75.96
Spring Creek (Hindeman Creek)	07020007-574	2010	2015	EXS	Meets	75.95
County Ditch 13	07020012-636	2014	2016	EXS	Meets	75.95
County Ditch 115	07020007-673	2013	2015	EXS	Meets	75.94
County Ditch 25	07020009-603	2017	2019	EXS	Meets	75.93
Unnamed creek	07100001-670	2014	2016	EXS	Meets	75.93
Birch Coulee Creek	07020007-587	2014	2015	EXS	Meets	75.84
Little Rock Creek (Judicial Ditch 31)	07020007-686	2013	2015	EXS	Meets	75.83
Rush River, Middle Branch (County Ditch 23 and 24)	07020012-586	2014	2016	EXS	Meets	75.83
Lake Shetek Inlet	07100001-641	2014	2016	EXS	Meets	75.80
Champepadan Creek	10170204-520	2011	2020	EXS	Meets	75.75
Watonwan River	07020010-566	2013	2015	EXS	Meets	75.74
Unnamed creek	07020006-574	2017	2019	EXS	Meets	75.72
Unnamed creek	07100002-504	2014	2016	EXS	Meets	75.72
Unnamed creek	07020005-584	2019	2011	EXS	Meets	75.71
County Ditch 26	07020009-628	2017	2019	EXS	Meets	75.71
Rush River, North Branch (Judicial Ditch 18)	07020012-555	2014	2016	EXS	Meets	75.67
Judicial Ditch 1	10170204-580	2011	2020	EXS	Meets	75.64
Unnamed creek	07020006-532	2017	2019	EXS	Meets	75.62
County Ditch 31	07020006-576	2017	2019	EXS	Meets	75.61
County Ditch A	10170204-557	2011	2020	EXS	Meets	75.61
Judicial Ditch 13	07020007-717	2015	2015	EXS	Meets	75.59
Dry Wood Creek	07020002-556	2017	2019	EXS	Meets	75.59
Unnamed creek	07020008-621	2017	2019	EXS	Meets	75.58
Judicial Ditch 1	07020012-785	2014	2016	EXS	Meets	75.58
Unnamed creek (Limbo Creek)	07020004-566	2010	2012	EXS	Meets	75.53
Mink Creek	07020010-577	2013	2015	EXS	Meets	75.43
Unnamed creek	07100001-632	2014	2016	EXS	Meets	75.40
Unnamed creek	07100001-563	2015	2016	EXS	Meets	75.38
County Ditch 44	07020012-786	2014	2016	EXS	Meets	75.37

Unnamed creek	07040001-527	2018	2018	EXS	Meets	75.35
Sevenmile Creek	07020007-562	2013	2015	EXS	Meets	75.35
Watonwan River, South Fork	07020010-517	2013	2015	EXS	Meets	75.35
County Ditch 11	07020007-661	2013	2015	EXS	Meets	75.35
Beaver Creek	10170203-522	2011	2013	EXS	Meets	75.31
County Ditch 106A (Fort Ridgely Creek)	07020007-688	2013	2015	EXS	Meets	75.29
Champepadan Creek	10170204-520	2010	2020	EXS	Meets	75.27
Unnamed creek	07020009-625	2017	2019	EXS	Meets	75.23
Judicial Ditch 8	07010205-591	2010	2014	EXS	Meets	75.22
Kanaranzi Creek	10170204-517	2011	2013	EXS	Meets	75.21
Elk Creek	07100001-656	2014	2016	EXS	Meets	75.20
Eightmile Creek	07020007-684	2013	2015	EXS	Meets	75.13
Unnamed creek	10170204-579	2011	2013	EXS	Meets	75.13
County Ditch 67	07020007-658	2013	2015	EXS	Meets	75.12
Kanaranzi Creek, East Branch	10170204-514	2011	2020	EXS	Meets	75.09
Unnamed creek	07020010-583	2010	2015	EXS	Meets	75.05
Birch Coulee Creek	07020007-587	2013	2015	EXS	Meets	75.04
Judicial Ditch 1	07020010-579	2014	2015	EXS	Meets	75.02

Waters of Potential Concern

- IBI score – not available
- Conditional probability – high (> 75%); **and** Regional Benchmark – exceeded

Waterbody Name	WID	Sample Year	Exceed Regional Benchmark	Probability of Exceeding Biocriterion
Parkville Creek (West Two River, East Branch)	04010201-537	2013	Exceeds	78.48
West Two River, West Branch	04010201-538	2012	Exceeds	86.21
Second Creek (First Creek)	04010201-952	2012	Exceeds	90.28
Second Creek (First Creek)	04010201-952	2015	Exceeds	75.67
County Ditch 15	07010106-552	2010	Exceeds	80.28
Unnamed creek	07010202-546	2018	Exceeds	87.93
Unnamed creek (Cold Spring Creek)	07010202-567	2016	Exceeds	78.45
Hoboken Creek	07010202-721	2016	Exceeds	80.04
Hoboken Creek	07010202-721	2017	Exceeds	80.68
Hoboken Creek	07010202-721	2019	Exceeds	75.96
Stony Brook	07010203-520	2010	Exceeds	88.13
Unnamed creek	07010203-528	2010	Exceeds	79.90
Unnamed creek	07010203-587	2015	Exceeds	84.72
Unnamed creek	07010203-587	2016	Exceeds	83.96
Unnamed creek	07010203-588	2016	Exceeds	85.36
Unnamed creek	07010203-714	2010	Exceeds	75.51
Unnamed creek	07010203-733	2018	Exceeds	77.89
County Ditch 20	07010203-737	2013	Exceeds	75.37
County Ditch 20	07010203-737	2016	Exceeds	75.07
County Ditch 20	07010203-737	2018	Exceeds	76.43
County Ditch 20	07010203-738	2013	Exceeds	76.69
Unnamed creek	07010204-543	2010	Exceeds	80.57
County Ditch 32	07010204-578	2010	Exceeds	79.31
County Ditch 32	07010204-578	2011	Exceeds	75.98
County Ditch 32	07010204-578	2012	Exceeds	76.87

County Ditch 32	07010204-578	2016	Exceeds	78.45
County Ditch 32	07010204-578	2017	Exceeds	76.38
County Ditch 7	07010204-580	2010	Exceeds	84.12
County Ditch 7	07010204-580	2011	Exceeds	79.46
County Ditch 7	07010204-580	2012	Exceeds	81.73
County Ditch 7	07010204-580	2013	Exceeds	76.11
County Ditch 7	07010204-580	2015	Exceeds	77.41
County Ditch 7	07010204-580	2016	Exceeds	78.81
Unnamed creek	07010204-706	2010	Exceeds	77.57
Judicial Ditch 1	07010204-743	2016	Exceeds	78.20
County Ditch 7	07010204-747	2018	Exceeds	80.57
Sucker Creek	07010204-762	2010	Exceeds	76.16
Judicial Ditch 67	07010205-504	2014	Exceeds	84.87
Crow River, South Fork	07010205-508	2017	Exceeds	76.72
Judicial Ditch 15	07010205-509	2014	Exceeds	83.32
Crow River, South Fork	07010205-511	2017	Exceeds	81.86
Judicial Ditch 15 branch	07010205-627	2012	Exceeds	84.01
Judicial Ditch 15 branch	07010205-627	2014	Exceeds	84.80
Unnamed creek	07010206-526	2011	Exceeds	75.21
Unnamed creek	07010206-542	2010	Exceeds	88.31
County Ditch 17	07010206-557	2010	Exceeds	86.78
County Ditch 17	07010206-557	2014	Exceeds	83.40
County Ditch 17	07010206-557	2015	Exceeds	75.11
County Ditch 17	07010206-557	2017	Exceeds	87.30
Sand Creek	07010206-558	2014	Exceeds	75.57
Sand Creek	07010206-558	2017	Exceeds	75.67
Unnamed ditch	07010206-594	2012	Exceeds	80.84
Unnamed ditch	07010206-594	2013	Exceeds	80.29
Unnamed ditch	07010206-594	2014	Exceeds	92.24
Unnamed ditch	07010206-594	2015	Exceeds	84.20
Unnamed ditch	07010206-594	2016	Exceeds	95.29

Unnamed ditch	07010206-594	2017	Exceeds	91.44
Unnamed creek	07010206-701	2010	Exceeds	78.67
Unnamed creek	07010206-701	2011	Exceeds	79.15
Unnamed creek	07010206-701	2015	Exceeds	76.41
Unnamed creek	07010206-701	2016	Exceeds	76.35
Unnamed creek	07010206-702	2010	Exceeds	79.32
Unnamed creek	07010206-704	2011	Exceeds	76.11
Unnamed creek	07010206-704	2013	Exceeds	77.09
Unnamed creek	07010206-704	2014	Exceeds	75.20
Unnamed creek	07010206-704	2015	Exceeds	80.06
Unnamed creek	07010206-718	2010	Exceeds	97.22
Unnamed creek	07010206-718	2011	Exceeds	97.80
Unnamed creek	07010206-718	2012	Exceeds	92.26
Unnamed creek	07010206-718	2013	Exceeds	96.80
Unnamed creek	07010206-718	2014	Exceeds	95.35
Unnamed creek	07010206-718	2015	Exceeds	96.14
Unnamed ditch	07010206-744	2010	Exceeds	75.91
Unnamed ditch	07010206-744	2014	Exceeds	75.29
Unnamed ditch	07010206-765	2014	Exceeds	83.17
Unnamed ditch	07010206-765	2015	Exceeds	82.34
Unnamed ditch	07010206-765	2016	Exceeds	78.86
Unnamed ditch	07010206-765	2017	Exceeds	84.09
Bass Creek	07010206-784	2018	Exceeds	78.67
Unnamed creek	07010206-785	2013	Exceeds	85.17
Unnamed creek	07010206-802	2013	Exceeds	82.66
Unnamed creek	07010206-909	2013	Exceeds	83.89
Unnamed creek	07010206-914	2010	Exceeds	82.91
Unnamed creek	07010206-914	2013	Exceeds	81.95
Unnamed creek (West Salmonsen Creek)	07020001-504	2011	Exceeds	86.15
Unnamed creek (West Salmonsen Creek)	07020001-504	2012	Exceeds	87.39
Unnamed creek (West Salmonsen Creek)	07020001-504	2015	Exceeds	91.64

Unnamed creek (West Salmonsen Creek)	07020001-504	2018	Exceeds	91.57
Little Minnesota River	07020001-508	2012	Exceeds	85.07
Little Minnesota River	07020001-508	2016	Exceeds	83.42
Yellow Bank River	07020001-525	2017	Exceeds	82.50
Yellow Bank River, South Fork	07020001-526	2016	Exceeds	81.26
Unnamed creek	07020001-541	2012	Exceeds	85.04
Emily Creek	07020001-547	2016	Exceeds	93.07
Emily Creek	07020001-547	2017	Exceeds	91.97
Unnamed creek	07020001-548	2015	Exceeds	94.06
Unnamed creek	07020001-548	2017	Exceeds	93.19
Unnamed creek	07020001-548	2018	Exceeds	91.75
Unnamed creek	07020001-551	2016	Exceeds	83.41
Unnamed creek	07020001-551	2017	Exceeds	88.33
Minnesota River	07020001-552	2012	Exceeds	83.45
Unnamed creek	07020001-559	2015	Exceeds	85.48
Unnamed creek	07020001-559	2017	Exceeds	86.06
Unnamed creek	07020001-560	2015	Exceeds	84.14
Unnamed creek	07020001-561	2017	Exceeds	83.00
Unnamed creek (Meadowbrook Creek)	07020001-568	2011	Exceeds	85.02
Unnamed creek (Meadowbrook Creek)	07020001-568	2012	Exceeds	88.65
Unnamed creek (Meadowbrook Creek)	07020001-568	2016	Exceeds	83.84
Unnamed creek (Meadowbrook Creek)	07020001-568	2017	Exceeds	91.44
Unnamed creek	07020001-569	2010	Exceeds	83.99
Unnamed creek	07020001-569	2015	Exceeds	91.14
Unnamed creek	07020001-569	2015	Exceeds	97.00
Unnamed creek	07020001-569	2018	Exceeds	95.86
Unnamed creek	07020001-570	2017	Exceeds	91.49
Fish Creek	07020001-571	2011	Exceeds	83.00
Fish Creek	07020001-571	2012	Exceeds	86.68
Fish Creek	07020001-571	2016	Exceeds	82.52
Fish Creek	07020001-571	2017	Exceeds	94.68

Emily Creek	07020001-576	2017	Exceeds	92.07
Emily Creek	07020001-576	2018	Exceeds	84.89
Pelican Creek	07020002-506	2016	Exceeds	98.91
Muddy Creek	07020002-511	2010	Exceeds	81.19
Muddy Creek	07020002-511	2012	Exceeds	88.00
Muddy Creek	07020002-511	2016	Exceeds	86.14
Muddy Creek	07020002-511	2017	Exceeds	84.77
Muddy Creek	07020002-511	2018	Exceeds	82.58
Unnamed ditch	07020002-512	2017	Exceeds	81.84
Unnamed creek	07020002-539	2017	Exceeds	88.49
Unnamed creek	07020002-539	2018	Exceeds	81.58
Dry Wood Creek	07020002-556	2016	Exceeds	86.08
Unnamed creek	07020002-576	2016	Exceeds	81.15
Lac qui Parle River	07020003-501	2012	Exceeds	87.67
Lac qui Parle River	07020003-501	2013	Exceeds	84.62
Lac qui Parle River	07020003-501	2016	Exceeds	86.52
Lac qui Parle River	07020003-501	2017	Exceeds	85.50
Lac qui Parle River	07020003-501	2018	Exceeds	83.37
Lac qui Parle River	07020003-501	2019	Exceeds	84.70
Lac qui Parle River	07020003-502	2015	Exceeds	83.82
Lac qui Parle River	07020003-502	2016	Exceeds	95.90
Lazarus Creek (Canby Creek)	07020003-508	2016	Exceeds	88.12
Lazarus Creek	07020003-509	2017	Exceeds	87.21
Lac qui Parle River, West Branch	07020003-512	2013	Exceeds	84.84
Lac qui Parle River, West Branch	07020003-512	2016	Exceeds	87.11
Lac qui Parle River, West Branch	07020003-512	2017	Exceeds	87.54
Lac qui Parle River, West Branch	07020003-512	2018	Exceeds	83.38
Lac qui Parle River, West Branch	07020003-513	2016	Exceeds	87.05
Lac qui Parle River, West Branch	07020003-513	2017	Exceeds	84.58
Lac qui Parle River, West Branch	07020003-516	2016	Exceeds	89.24
Lost Creek	07020003-517	2016	Exceeds	88.11

Lost Creek	07020003-517	2017	Exceeds	86.95
Crow Timber Creek	07020003-520	2017	Exceeds	86.50
County Ditch 27	07020003-522	2015	Exceeds	95.01
County Ditch 5	07020003-523	2015	Exceeds	88.67
County Ditch 5	07020003-523	2015	Exceeds	86.75
County Ditch 34	07020003-526	2017	Exceeds	83.99
County Ditch 34	07020003-526	2018	Exceeds	84.47
Unnamed creek	07020003-534	2015	Exceeds	89.95
Unnamed creek	07020003-534	2017	Exceeds	90.39
Judicial Ditch 4	07020003-555	2015	Exceeds	89.60
Judicial Ditch 1	07020003-560	2015	Exceeds	89.76
Judicial Ditch 4	07020003-563	2015	Exceeds	89.00
Judicial Ditch 4	07020003-563	2016	Exceeds	88.21
Unnamed creek	07020003-567	2017	Exceeds	83.73
Unnamed ditch	07020003-570	2017	Exceeds	91.99
Unnamed ditch	07020003-571	2017	Exceeds	86.77
Unnamed ditch	07020003-575	2017	Exceeds	92.50
Tenmile Creek	07020003-577	2017	Exceeds	83.59
Tenmile Creek	07020003-578	2016	Exceeds	85.51
Tenmile Creek	07020003-578	2017	Exceeds	89.58
Unnamed creek	07020003-580	2016	Exceeds	88.28
Unnamed creek	07020003-580	2017	Exceeds	90.79
Unnamed ditch (County Ditch 4)	07020003-581	2015	Exceeds	93.09
Unnamed ditch (County Ditch 4)	07020003-581	2016	Exceeds	89.88
Unnamed ditch (County Ditch 4)	07020003-581	2017	Exceeds	92.65
Cobb Creek	07020003-583	2017	Exceeds	92.16
Canby Creek	07020003-586	2015	Exceeds	87.54
Unnamed creek	07020003-588	2017	Exceeds	92.76
Yellow Medicine River	07020004-502	2010	Exceeds	83.49
Yellow Medicine River	07020004-502	2011	Exceeds	83.24
Yellow Medicine River	07020004-502	2013	Exceeds	83.98

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Yellow Medicine River	07020004-502	2016	Exceeds	84.63
Yellow Medicine River	07020004-502	2017	Exceeds	86.13
Hawk Creek	07020004-508	2010	Exceeds	84.98
Hawk Creek	07020004-508	2012	Exceeds	87.79
Hawk Creek	07020004-508	2015	Exceeds	86.65
Yellow Medicine River	07020004-513	2011	Exceeds	84.82
Yellow Medicine River	07020004-513	2012	Exceeds	85.49
Yellow Medicine River	07020004-513	2013	Exceeds	83.88
Yellow Medicine River	07020004-513	2016	Exceeds	85.31
Yellow Medicine River	07020004-513	2017	Exceeds	85.76
Yellow Medicine River	07020004-513	2018	Exceeds	83.07
Sacred Heart Creek	07020004-526	2011	Exceeds	83.67
Sacred Heart Creek	07020004-526	2012	Exceeds	83.98
Palmer Creek (County Ditch 68)	07020004-534	2010	Exceeds	88.71
Palmer Creek (County Ditch 68)	07020004-534	2011	Exceeds	87.82
Hazel Creek	07020004-536	2010	Exceeds	85.47
Hazel Creek	07020004-536	2011	Exceeds	85.21
Spring Creek	07020004-538	2010	Exceeds	91.56
Spring Creek	07020004-538	2011	Exceeds	89.54
Spring Creek	07020004-538	2012	Exceeds	89.84
Spring Creek	07020004-538	2013	Exceeds	86.11
Spring Creek	07020004-538	2014	Exceeds	83.05
Spring Creek	07020004-538	2015	Exceeds	84.86
Spring Creek	07020004-538	2016	Exceeds	92.19
Spring Creek	07020004-538	2017	Exceeds	88.67
Spring Creek	07020004-538	2018	Exceeds	87.92
Spring Creek	07020004-538	2019	Exceeds	86.65
Mud Creek	07020004-543	2010	Exceeds	90.47
Mud Creek	07020004-543	2011	Exceeds	89.11
Mud Creek	07020004-543	2012	Exceeds	91.72
Unnamed creek	07020004-545	2011	Exceeds	89.43

Judicial Ditch 10 (Wood Lake Creek)	07020004-547	2010	Exceeds	86.03
Judicial Ditch 10 (Wood Lake Creek)	07020004-547	2011	Exceeds	84.51
Beaver Creek, East Fork	07020004-585	2010	Exceeds	83.14
Spring Creek	07020004-588	2011	Exceeds	83.13
County Ditch 63 (East Fork Beaver Creek)	07020004-621	2010	Exceeds	85.08
Judicial Ditch 17	07020004-622	2011	Exceeds	87.66
Judicial Ditch 16	07020004-623	2010	Exceeds	85.49
County Ditch 37	07020004-634	2010	Exceeds	91.76
Judicial Ditch 7	07020004-636	2010	Exceeds	89.13
Judicial Ditch 23	07020004-673	2010	Exceeds	85.17
County Ditch 45	07020004-676	2010	Exceeds	84.56
County Ditch 45	07020004-676	2011	Exceeds	88.88
Spring Creek	07020004-683	2010	Exceeds	83.32
County Ditch 11	07020004-689	2011	Exceeds	92.04
Unnamed creek	07020004-695	2010	Exceeds	82.15
Unnamed creek	07020004-703	2010	Exceeds	93.53
Unnamed creek	07020004-707	2010	Exceeds	85.46
County Ditch 36	07020004-708	2010	Exceeds	88.15
County Ditch 90	07020004-711	2010	Exceeds	83.67
County Ditch 39	07020004-713	2012	Exceeds	83.81
Judicial Ditch 2	07020004-730	2010	Exceeds	84.74
Unnamed ditch	07020004-735	2010	Exceeds	83.56
Minnesota River	07020004-747	2017	Exceeds	83.97
Chippewa River	07020005-505	2018	Exceeds	82.34
Chippewa River	07020005-508	2018	Exceeds	89.04
Cottonwood Creek	07020005-510	2010	Exceeds	85.78
Cottonwood Creek	07020005-510	2012	Exceeds	84.21
Cottonwood Creek	07020005-510	2016	Exceeds	83.24
Cottonwood Creek	07020005-510	2017	Exceeds	86.73
Unnamed ditch	07020005-550	2016	Exceeds	83.12
Unnamed ditch	07020005-550	2017	Exceeds	83.34

Shakopee Creek	07020005-559	2018	Exceeds	91.22
Unnamed ditch (Judicial Ditch 29)	07020005-566	2017	Exceeds	84.91
County Ditch 27	07020005-570	2017	Exceeds	75.18
Unnamed creek	07020005-576	2016	Exceeds	88.63
Unnamed creek	07020005-576	2017	Exceeds	89.95
Unnamed creek (Cottonwood Creek)	07020005-577	2010	Exceeds	84.80
Unnamed creek (Cottonwood Creek)	07020005-577	2011	Exceeds	83.94
Unnamed creek (Cottonwood Creek)	07020005-577	2012	Exceeds	86.93
Unnamed creek (Cottonwood Creek)	07020005-577	2015	Exceeds	83.94
Spring Creek (County Ditch 10A)	07020005-594	2016	Exceeds	85.05
Spring Creek (County Ditch 10A)	07020005-594	2017	Exceeds	85.27
Unnamed creek	07020005-660	2010	Exceeds	93.07
Unnamed creek	07020005-660	2011	Exceeds	92.04
Unnamed creek	07020005-660	2012	Exceeds	91.81
Unnamed creek	07020005-660	2013	Exceeds	87.85
Unnamed creek	07020005-660	2014	Exceeds	87.80
Unnamed creek	07020005-660	2015	Exceeds	89.34
Unnamed creek	07020005-660	2016	Exceeds	92.01
Unnamed creek	07020005-660	2017	Exceeds	91.94
Unnamed creek	07020005-661	2010	Exceeds	92.33
Unnamed creek	07020005-661	2011	Exceeds	91.50
Unnamed creek	07020005-661	2012	Exceeds	91.63
Unnamed creek	07020005-661	2013	Exceeds	87.42
Unnamed creek	07020005-661	2014	Exceeds	86.57
Unnamed creek	07020005-661	2015	Exceeds	89.58
Unnamed creek	07020005-661	2016	Exceeds	91.70
Unnamed creek	07020005-661	2017	Exceeds	92.27
Unnamed creek	07020005-663	2016	Exceeds	92.71
Unnamed creek	07020005-663	2017	Exceeds	91.96
Unnamed creek	07020005-675	2012	Exceeds	81.24
Unnamed creek	07020005-709	2010	Exceeds	89.65

Unnamed creek	07020005-709	2011	Exceeds	89.24
Unnamed creek	07020005-709	2012	Exceeds	89.60
Unnamed creek	07020005-709	2013	Exceeds	84.75
Unnamed creek	07020005-709	2014	Exceeds	83.93
Unnamed creek	07020005-709	2015	Exceeds	87.79
Unnamed creek	07020005-710	2010	Exceeds	94.48
Little Chippewa River	07020005-714	2012	Exceeds	78.95
Little Chippewa River	07020005-714	2015	Exceeds	75.02
Little Chippewa River	07020005-714	2017	Exceeds	79.25
Unnamed creek	07020005-718	2011	Exceeds	86.93
Dry Weather Creek	07020005-724	2016	Exceeds	91.58
Dry Weather Creek	07020005-724	2017	Exceeds	94.73
Dry Weather Creek	07020005-725	2010	Exceeds	93.32
Dry Weather Creek	07020005-725	2011	Exceeds	92.20
Dry Weather Creek	07020005-725	2012	Exceeds	92.16
Dry Weather Creek	07020005-725	2013	Exceeds	87.92
Dry Weather Creek	07020005-725	2014	Exceeds	88.24
Dry Weather Creek	07020005-725	2015	Exceeds	88.44
Dry Weather Creek	07020005-726	2010	Exceeds	91.98
Dry Weather Creek	07020005-726	2011	Exceeds	91.58
Dry Weather Creek	07020005-726	2012	Exceeds	91.41
Dry Weather Creek	07020005-726	2013	Exceeds	87.47
Dry Weather Creek	07020005-726	2014	Exceeds	85.50
Dry Weather Creek	07020005-726	2015	Exceeds	85.93
Dry Weather Creek	07020005-726	2016	Exceeds	89.93
Dry Weather Creek	07020005-726	2017	Exceeds	87.31
Dry Weather Creek	07020005-726	2019	Exceeds	90.06
Mud Creek	07020005-730	2012	Exceeds	75.45
Redwood River	07020006-502	2013	Exceeds	91.25
Redwood River	07020006-502	2014	Exceeds	85.58
Redwood River	07020006-502	2015	Exceeds	85.42

Redwood River	07020006-503	2010	Exceeds	85.75
Redwood River	07020006-509	2010	Exceeds	85.80
Redwood River	07020006-509	2012	Exceeds	85.57
Redwood River	07020006-509	2013	Exceeds	85.11
Redwood River	07020006-509	2015	Exceeds	84.04
Redwood River	07020006-509	2016	Exceeds	84.60
Redwood River	07020006-509	2017	Exceeds	84.09
Judicial Ditch 14 & 15	07020006-517	2017	Exceeds	87.30
Judicial Ditch 30	07020006-554	2017	Exceeds	81.20
Unnamed creek	07020006-558	2019	Exceeds	87.02
Unnamed creek	07020006-559	2017	Exceeds	93.39
Unnamed creek	07020006-559	2019	Exceeds	90.58
Unnamed creek	07020006-561	2017	Exceeds	83.56
Unnamed creek	07020006-562	2017	Exceeds	91.87
Threemile Creek	07020006-565	2010	Exceeds	84.96
Threemile Creek	07020006-565	2012	Exceeds	87.88
Threemile Creek	07020006-565	2013	Exceeds	87.81
Threemile Creek	07020006-565	2017	Exceeds	88.22
Threemile Creek	07020006-565	2018	Exceeds	87.25
Clear Creek	07020006-567	2010	Exceeds	85.40
Clear Creek	07020006-567	2017	Exceeds	88.14
Unnamed creek	07020006-572	2017	Exceeds	90.52
Unnamed creek	07020006-573	2019	Exceeds	93.27
County Ditch 60	07020006-578	2019	Exceeds	89.36
County Ditch 109	07020007-528	2013	Exceeds	86.98
Rogers Creek (County Ditch 78)	07020007-613	2016	Exceeds	83.45
Rogers Creek (County Ditch 78)	07020007-613	2016	Exceeds	87.17
Altermatts Creek	07020007-681	2013	Exceeds	84.31
Minnesota River	07020007-723	2010	Exceeds	75.21
Minnesota River	07020007-723	2012	Exceeds	79.29
Minnesota River	07020007-723	2017	Exceeds	81.51

Minnesota River	07020007-723	2019	Exceeds	75.84
Cottonwood River	07020008-504	2017	Exceeds	84.73
Cottonwood River	07020008-504	2018	Exceeds	83.35
Cottonwood River	07020008-505	2010	Exceeds	84.19
Cottonwood River	07020008-508	2017	Exceeds	83.03
Judicial Ditch 30	07020008-511	2017	Exceeds	83.75
Pell Creek	07020008-523	2017	Exceeds	87.92
Pell Creek	07020008-523	2018	Exceeds	86.42
Lone Tree Creek	07020008-524	2017	Exceeds	89.52
Lone Tree Creek	07020008-524	2018	Exceeds	87.43
Pell Creek	07020008-536	2017	Exceeds	89.29
Unnamed creek	07020008-545	2017	Exceeds	88.00
Judicial Ditch 9	07020008-548	2017	Exceeds	88.24
Unnamed creek	07020008-555	2017	Exceeds	86.60
County Ditch 44	07020008-568	2017	Exceeds	89.37
Unnamed creek	07020008-578	2017	Exceeds	88.30
Unnamed creek	07020008-584	2017	Exceeds	85.45
Unnamed creek	07020008-587	2017	Exceeds	86.57
Judicial Ditch 3	07020008-588	2017	Exceeds	86.58
Unnamed creek	07020008-591	2017	Exceeds	92.43
Unnamed creek	07020008-592	2017	Exceeds	88.04
Unnamed ditch	07020008-594	2017	Exceeds	84.23
Meadow Creek	07020008-601	2017	Exceeds	88.12
Meadow Creek	07020008-601	2018	Exceeds	85.56
Plum Creek (Judicial Ditch 20A)	07020008-602	2017	Exceeds	85.24
Unnamed creek	07020008-613	2017	Exceeds	86.51
Unnamed creek	07020008-623	2017	Exceeds	85.97
St James Creek	07020010-502	2013	Exceeds	87.11
Unnamed creek	07020010-526	2015	Exceeds	84.26
Minnesota River	07020012-505	2013	Exceeds	78.16
Minnesota River	07020012-505	2019	Exceeds	76.60

Minnesota River	07020012-506	2014	Exceeds	75.92
Minnesota River	07020012-506	2019	Exceeds	76.37
Unnamed ditch	07020012-533	2015	Exceeds	95.06
Unnamed ditch	07020012-533	2016	Exceeds	86.43
Unnamed ditch	07020012-533	2017	Exceeds	90.12
Unnamed ditch	07020012-533	2018	Exceeds	87.15
County Ditch 51	07020012-547	2014	Exceeds	88.15
County Ditch 51	07020012-547	2015	Exceeds	84.10
County Ditch 42	07020012-552	2010	Exceeds	87.04
County Ditch 42	07020012-552	2014	Exceeds	84.30
Rush River, North Branch (County Ditch 55)	07020012-558	2014	Exceeds	84.15
Rush River, North Branch (County Ditch 55)	07020012-558	2015	Exceeds	85.06
Unnamed ditch	07020012-560	2010	Exceeds	92.68
Unnamed creek	07020012-587	2014	Exceeds	77.17
Judicial Ditch 11	07020012-590	2016	Exceeds	83.37
Barney Fry Creek	07020012-602	2016	Exceeds	77.24
Judicial Ditch 15	07020012-682	2016	Exceeds	85.34
Bluff Creek	07020012-710	2013	Exceeds	82.20
Bluff Creek	07020012-710	2014	Exceeds	75.75
Bluff Creek	07020012-710	2015	Exceeds	76.34
Raven Stream	07020012-716	2013	Exceeds	84.69
Unnamed creek	07020012-732	2016	Exceeds	75.42
Unnamed creek	07020012-753	2011	Exceeds	75.41
County Ditch 8/53	07020012-766	2014	Exceeds	75.13
Judicial Ditch 4	07020012-767	2015	Exceeds	78.68
Judicial Ditch 4	07020012-767	2016	Exceeds	80.95
Unnamed creek	07020012-768	2015	Exceeds	75.03
County Ditch 50	07020012-796	2016	Exceeds	84.95
Unnamed creek	07020012-798	2016	Exceeds	76.48
Minnesota River	07020012-799	2014	Exceeds	76.07
Minnesota River	07020012-799	2019	Exceeds	77.60

Minnesota River	07020012-800	2013	Exceeds	75.16
Minnesota River	07020012-800	2014	Exceeds	75.39
Minnesota River	07020012-800	2019	Exceeds	76.54
County Ditch 30A	07020012-801	2016	Exceeds	83.73
Silver Creek	07020012-813	2016	Exceeds	75.85
Raven Stream, East Branch	07020012-819	2014	Exceeds	94.31
Unnamed creek	07020012-822	2015	Exceeds	90.60
Purgatory Creek	07020012-827	2016	Exceeds	79.42
Unnamed creek	07020012-852	2015	Exceeds	79.94
Judicial Ditch 2	07030005-525	2012	Exceeds	87.64
St Croix River	07030005-782	2015	Exceeds	86.71
Vermillion River	07040001-516	2010	Exceeds	82.56
Vermillion River	07040001-516	2011	Exceeds	92.16
Wolf Creek	07040002-522	2010	Exceeds	75.16
Unnamed ditch	07040002-530	2011	Exceeds	77.06
Unnamed ditch	07040002-530	2013	Exceeds	97.31
Unnamed ditch	07040002-530	2014	Exceeds	79.97
Unnamed ditch	07040002-555	2011	Exceeds	92.28
Unnamed ditch	07040002-555	2013	Exceeds	99.57
Unnamed ditch	07040002-555	2014	Exceeds	86.39
Unnamed creek	07040002-613	2010	Exceeds	75.61
Unnamed creek	07040003-526	2010	Exceeds	99.27
Unnamed creek	07040003-526	2018	Exceeds	92.30
Unnamed creek	07040004-527	2012	Exceeds	76.13
Zumbro River, North Fork	07040004-971	2013	Exceeds	94.90
Judicial Ditch 5	07080201-623	2018	Exceeds	100.00
Okabena Creek	07100001-512	2014	Exceeds	88.92
Okabena Creek	07100001-512	2015	Exceeds	87.07
Okabena Creek	07100001-602	2015	Exceeds	84.88
Unnamed creek	07100001-626	2015	Exceeds	83.19
Bois de Sioux River	09020101-501	2010	Exceeds	83.62

Rabbit River	09020101-502	2011	Exceeds	77.53
Rabbit River	09020101-502	2012	Exceeds	95.36
Rabbit River	09020101-502	2013	Exceeds	84.58
Rabbit River	09020101-502	2014	Exceeds	94.16
Rabbit River	09020101-502	2015	Exceeds	97.83
Rabbit River	09020101-502	2016	Exceeds	98.13
Rabbit River	09020101-502	2017	Exceeds	99.18
Rabbit River	09020101-502	2018	Exceeds	94.92
Rabbit River	09020101-502	2019	Exceeds	97.93
Bois de Sioux River	09020101-503	2014	Exceeds	76.86
Bois de Sioux River	09020101-503	2015	Exceeds	83.16
Bois de Sioux River	09020101-503	2016	Exceeds	90.84
Bois de Sioux River	09020101-503	2017	Exceeds	95.21
Bois de Sioux River	09020101-503	2018	Exceeds	86.51
Bois de Sioux River	09020101-503	2019	Exceeds	81.46
Unnamed creek (Doran Slough)	09020101-510	2010	Exceeds	97.60
Unnamed creek (Doran Slough)	09020101-510	2011	Exceeds	94.64
Rabbit River, South Fork	09020101-512	2010	Exceeds	93.21
Rabbit River, South Fork	09020101-512	2011	Exceeds	98.04
Rabbit River, South Fork	09020101-512	2012	Exceeds	95.67
Rabbit River, South Fork	09020101-512	2013	Exceeds	99.50
Rabbit River, South Fork	09020101-512	2014	Exceeds	99.99
Rabbit River, South Fork	09020101-512	2015	Exceeds	99.99
Rabbit River, South Fork	09020101-512	2017	Exceeds	99.69
County Ditch 9	09020101-513	2010	Exceeds	99.97
County Ditch 9	09020101-513	2011	Exceeds	100.00
County Ditch 9	09020101-513	2012	Exceeds	99.81
County Ditch 9	09020101-513	2013	Exceeds	99.95
County Ditch 9	09020101-513	2014	Exceeds	99.67
County Ditch 9	09020101-513	2015	Exceeds	99.73
County Ditch 9	09020101-513	2017	Exceeds	99.95

Unnamed creek	09020101-515	2010	Exceeds	99.47
Unnamed creek	09020101-515	2011	Exceeds	99.94
Unnamed creek	09020101-515	2012	Exceeds	99.76
Unnamed creek	09020101-515	2013	Exceeds	99.83
Unnamed creek	09020101-515	2015	Exceeds	99.99
Unnamed creek	09020101-515	2017	Exceeds	99.25
Judicial Ditch 2	09020101-516	2010	Exceeds	99.97
Judicial Ditch 2	09020101-516	2012	Exceeds	96.37
Judicial Ditch 2	09020101-516	2013	Exceeds	81.60
Judicial Ditch 2	09020101-516	2015	Exceeds	98.75
Judicial Ditch 2	09020101-516	2017	Exceeds	99.92
Judicial Ditch 12	09020101-517	2010	Exceeds	99.96
Judicial Ditch 12	09020101-517	2011	Exceeds	98.44
Judicial Ditch 12	09020101-517	2012	Exceeds	99.73
Judicial Ditch 12	09020101-517	2013	Exceeds	99.95
Judicial Ditch 12	09020101-517	2014	Exceeds	90.86
Judicial Ditch 12	09020101-517	2015	Exceeds	99.66
Judicial Ditch 12	09020101-517	2017	Exceeds	99.41
Judicial Ditch 12	09020101-519	2015	Exceeds	96.65
Unnamed ditch	09020101-520	2010	Exceeds	97.56
Unnamed ditch	09020101-520	2011	Exceeds	92.78
Unnamed ditch	09020101-520	2012	Exceeds	94.16
Unnamed ditch	09020101-520	2013	Exceeds	92.29
Unnamed ditch	09020101-520	2014	Exceeds	93.79
Unnamed ditch	09020101-520	2015	Exceeds	91.06
Unnamed ditch	09020101-520	2016	Exceeds	93.10
Unnamed ditch	09020101-520	2017	Exceeds	94.79
Unnamed ditch	09020101-521	2010	Exceeds	93.42
Unnamed ditch	09020101-521	2011	Exceeds	76.64
Unnamed ditch	09020101-521	2012	Exceeds	91.08
Unnamed ditch	09020101-521	2013	Exceeds	91.24

Unnamed ditch	09020101-527	2010	Exceeds	84.75
Unnamed ditch	09020101-527	2012	Exceeds	87.28
Unnamed ditch	09020101-527	2013	Exceeds	76.21
Unnamed ditch	09020101-527	2014	Exceeds	87.90
Unnamed ditch	09020101-527	2015	Exceeds	79.77
Unnamed ditch	09020101-527	2016	Exceeds	88.64
Unnamed ditch	09020101-527	2017	Exceeds	82.23
Unnamed creek	09020101-535	2010	Exceeds	91.69
Unnamed creek	09020101-539	2010	Exceeds	87.19
County Ditch 52	09020101-540	2010	Exceeds	81.61
Unnamed ditch	09020101-547	2010	Exceeds	99.29
Judicial Ditch 2	09020101-548	2010	Exceeds	94.19
Unnamed ditch	09020101-551	2015	Exceeds	85.20
Unnamed ditch	09020101-551	2016	Exceeds	80.89
Unnamed ditch	09020101-553	2015	Exceeds	97.21
Unnamed ditch	09020101-553	2016	Exceeds	87.53
Unnamed creek	09020101-556	2016	Exceeds	97.18
Unnamed ditch	09020101-557	2010	Exceeds	79.21
Mustinka River (Old Channel)	09020102-502	2010	Exceeds	79.70
Mustinka River	09020102-503	2010	Exceeds	82.09
Mustinka River	09020102-503	2011	Exceeds	79.59
Mustinka River	09020102-503	2012	Exceeds	87.90
Mustinka River	09020102-503	2013	Exceeds	84.08
Mustinka River	09020102-503	2014	Exceeds	82.49
Mustinka River	09020102-503	2015	Exceeds	92.79
Mustinka River	09020102-503	2016	Exceeds	92.04
Mustinka River	09020102-503	2017	Exceeds	96.89
Mustinka River	09020102-503	2018	Exceeds	82.89
Mustinka River	09020102-503	2019	Exceeds	91.34
Eighteenmile Creek	09020102-508	2011	Exceeds	84.62
Eighteenmile Creek	09020102-508	2014	Exceeds	89.71

Fivemile Creek	09020102-510	2010	Exceeds	80.08
Fivemile Creek	09020102-510	2011	Exceeds	80.08
Twelvemile Creek, West Branch	09020102-511	2010	Exceeds	88.35
Twelvemile Creek, West Branch	09020102-511	2011	Exceeds	79.15
Twelvemile Creek, West Branch	09020102-511	2012	Exceeds	98.38
Twelvemile Creek, West Branch	09020102-511	2014	Exceeds	94.81
Twelvemile Creek (County Ditch 1)	09020102-513	2010	Exceeds	91.03
Twelvemile Creek (County Ditch 1)	09020102-513	2011	Exceeds	87.75
Twelvemile Creek	09020102-514	2011	Exceeds	85.78
Twelvemile Creek	09020102-514	2014	Exceeds	80.84
Mustinka River	09020102-518	2010	Exceeds	77.52
Mustinka River	09020102-518	2012	Exceeds	92.93
Mustinka River	09020102-518	2013	Exceeds	85.50
Twelvemile Creek, East Fork	09020102-522	2011	Exceeds	98.85
Twelvemile Creek, West Fork	09020102-523	2011	Exceeds	98.92
Unnamed creek	09020102-524	2011	Exceeds	97.54
Unnamed ditch	09020102-525	2010	Exceeds	80.89
Unnamed ditch	09020102-525	2018	Exceeds	93.13
County Ditch 8	09020102-527	2011	Exceeds	93.99
Mustinka River Ditch	09020102-553	2017	Exceeds	79.40
Mustinka River Ditch	09020102-553	2018	Exceeds	87.40
Mustinka River Ditch	09020102-553	2019	Exceeds	85.48
Twelvemile Creek	09020102-557	2011	Exceeds	81.34
Twelvemile Creek	09020102-557	2012	Exceeds	89.34
Twelvemile Creek	09020102-557	2013	Exceeds	80.98
Twelvemile Creek	09020102-557	2014	Exceeds	89.22
Twelvemile Creek	09020102-557	2015	Exceeds	94.48
Twelvemile Creek	09020102-557	2016	Exceeds	95.10
Twelvemile Creek	09020102-557	2017	Exceeds	95.01
Twelvemile Creek	09020102-557	2018	Exceeds	89.41
Twelvemile Creek	09020102-557	2019	Exceeds	83.62

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Unnamed creek	09020102-559	2010	Exceeds	95.94
Unnamed creek	09020102-562	2010	Exceeds	92.01
Unnamed creek	09020102-578	2010	Exceeds	92.09
County Ditch 42	09020102-579	2011	Exceeds	75.45
Mustinka River	09020102-580	2010	Exceeds	82.41
Mustinka River	09020102-580	2013	Exceeds	81.44
Mustinka River	09020102-580	2017	Exceeds	85.59
Mustinka River	09020102-580	2018	Exceeds	83.84
Mustinka River	09020102-582	2010	Exceeds	82.32
Mustinka River	09020102-582	2010	Exceeds	87.96
Mustinka River	09020102-582	2011	Exceeds	80.46
Mustinka River	09020102-582	2013	Exceeds	82.55
Mustinka River	09020102-582	2014	Exceeds	80.04
Mustinka River	09020102-582	2015	Exceeds	88.86
Mustinka River	09020102-582	2016	Exceeds	89.55
Mustinka River	09020102-582	2017	Exceeds	91.42
Mustinka River	09020102-582	2018	Exceeds	87.03
County Ditch 14	09020103-546	2016	Exceeds	85.81
Unnamed creek	09020103-761	2013	Exceeds	99.97
Unnamed creek	09020103-761	2014	Exceeds	99.99
Unnamed creek	09020103-761	2015	Exceeds	100.00
Unnamed creek	09020103-761	2016	Exceeds	100.00
Unnamed creek	09020103-761	2017	Exceeds	100.00
Unnamed creek	09020103-761	2018	Exceeds	100.00
Unnamed creek	09020103-761	2019	Exceeds	100.00
Judicial Ditch 2	09020103-762	2013	Exceeds	75.64
Judicial Ditch 2	09020103-762	2015	Exceeds	77.01
Judicial Ditch 2	09020103-762	2018	Exceeds	85.37
Judicial Ditch 2	09020103-764	2016	Exceeds	90.73
Judicial Ditch 2	09020103-764	2017	Exceeds	78.31
Whiskey Creek	09020104-520	2014	Exceeds	90.42

Whiskey Creek	09020104-520	2015	Exceeds	86.84
Whiskey Creek	09020104-520	2017	Exceeds	88.80
Whiskey Creek	09020104-520	2018	Exceeds	98.10
Unnamed ditch	09020104-537	2013	Exceeds	84.03
Unnamed ditch	09020104-537	2014	Exceeds	84.76
Unnamed ditch	09020104-537	2015	Exceeds	88.56
Unnamed ditch	09020104-537	2016	Exceeds	80.95
Unnamed ditch	09020104-537	2017	Exceeds	96.88
Unnamed ditch	09020104-537	2018	Exceeds	86.50
Unnamed ditch	09020104-537	2019	Exceeds	93.91
Red River of the North	09020104-544	2016	Exceeds	77.77
Wolverton Creek	09020104-549	2010	Exceeds	82.24
Wolverton Creek	09020104-550	2012	Exceeds	85.96
Wolverton Creek	09020104-550	2013	Exceeds	84.31
Wolverton Creek	09020104-550	2014	Exceeds	94.18
Wolverton Creek	09020104-550	2015	Exceeds	89.63
Wolverton Creek	09020104-550	2016	Exceeds	91.33
Wolverton Creek	09020104-550	2017	Exceeds	84.65
Wolverton Creek	09020104-550	2019	Exceeds	91.97
Buffalo River, South Branch	09020106-504	2016	Exceeds	76.78
Buffalo River, South Branch	09020106-504	2019	Exceeds	80.59
Buffalo River, South Branch	09020106-505	2016	Exceeds	85.14
Deerhorn Creek	09020106-507	2016	Exceeds	82.19
Stony Creek	09020106-510	2019	Exceeds	98.07
Hay Creek	09020106-513	2012	Exceeds	78.96
Hay Creek	09020106-513	2016	Exceeds	77.26
Hay Creek	09020106-513	2017	Exceeds	81.31
Hay Creek	09020106-513	2018	Exceeds	77.04
Unnamed creek	09020106-533	2010	Exceeds	86.93
State Ditch 15	09020106-535	2012	Exceeds	79.22
State Ditch 15	09020106-535	2016	Exceeds	95.27

State Ditch 15	09020106-535	2017	Exceeds	84.43
State Ditch 15	09020106-535	2018	Exceeds	86.65
Unnamed creek	09020106-585	2010	Exceeds	85.36
Unnamed creek	09020106-585	2011	Exceeds	87.72
Unnamed creek	09020106-585	2012	Exceeds	90.13
Unnamed creek	09020106-585	2014	Exceeds	99.02
Unnamed creek	09020106-585	2015	Exceeds	99.91
Unnamed creek	09020106-585	2016	Exceeds	99.86
Unnamed creek	09020106-585	2018	Exceeds	96.63
Buffalo River, South Branch	09020106-605	2010	Exceeds	75.13
Red River of the North	09020107-501	2015	Exceeds	78.64
Spring Creek/State Ditch 68	09020107-509	2015	Exceeds	96.78
County Ditch 73	09020301-516	2011	Exceeds	87.15
County Ditch 1	09020303-536	2017	Exceeds	77.72
Browns Creek	09020303-539	2017	Exceeds	97.10
Unnamed creek (County Ditch 53)	09020303-549	2010	Exceeds	78.85
Unnamed creek	09020303-550	2017	Exceeds	88.11
Unnamed creek	09020303-550	2018	Exceeds	89.66
Cyr Creek	09020303-556	2016	Exceeds	83.46
Unnamed creek (Chief's Coulee)	09020303-563	2015	Exceeds	76.88
Unnamed creek (Chief's Coulee)	09020303-563	2016	Exceeds	84.51
Unnamed creek (Chief's Coulee)	09020303-563	2017	Exceeds	91.92
Unnamed creek (Chief's Coulee)	09020303-563	2018	Exceeds	89.44
Unnamed ditch	09020303-902	2012	Exceeds	77.97
Unnamed ditch	09020303-902	2017	Exceeds	78.43
Unnamed ditch	09020303-902	2018	Exceeds	79.96
Judicial Ditch 18	09020304-541	2011	Exceeds	85.18
Unnamed ditch (Marshall County Ditch 35	09020304-558	2011	Exceeds	76.90
Terrebonne Creek	09020305-574	2016	Exceeds	77.44
Beau Gerlot Creek	09020305-651	2016	Exceeds	77.02
Beau Gerlot Creek	09020305-652	2016	Exceeds	81.06

Grand Marais Creek	09020306-507	2017	Exceeds	76.94
Grand Marais Creek	09020306-513	2017	Exceeds	92.09
Judicial Ditch 1	09020306-519	2012	Exceeds	94.88
Judicial Ditch 1	09020306-519	2013	Exceeds	95.00
Grand Marais Cutoff Channel	09020306-522	2012	Exceeds	84.51
Grand Marais Cutoff Channel	09020306-522	2016	Exceeds	77.87
Unnamed ditch	09020309-514	2012	Exceeds	99.73
Unnamed ditch	09020309-518	2011	Exceeds	89.66
Unnamed ditch	09020309-518	2015	Exceeds	75.50
Unnamed ditch (County Ditch 38)	09020309-532	2013	Exceeds	95.95
Lateral Ditch 1	09020309-533	2013	Exceeds	100.00
Unnamed ditch	09020309-535	2011	Exceeds	88.02
Unnamed ditch	09020309-535	2015	Exceeds	78.05
Dark River	09030005-592	2018	Exceeds	89.28

Possible concern

- IBI score – not available
- Conditional probability – high (> 75%); **or** Regional Benchmark – exceeded

Attachment 2: Dischargers

Dischargers to Waterbodies With "Clear Concern"

Commented [NC(4]: As of now, we have only had time to pull this list but will do lists for the same selection as above

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WID	Ai Name	Current_Permit_ID	Description	Design_Flow_mgd	Avg_TDS_mgL	Avg_Specific_Conductance_uS/cm
07020003-513	Ag Processing Inc - Dawson	MN0040134	NCCW/Boiler Blwdwn/Sft & Grnsd Bkws/RO reject	1.53	944	#N/A
	Dawson WWTP	MN0021881	Total Faciity Discharge	0.471	1799	3062
07020003-526	Ag Processing Inc - Dawson	MN0040134	Stormwater Benchmarking Station	1.53	#N/A	#N/A
07020004-588	Community of Roseland WWTP	MN0070092	Main Facility Discharge	0.03	#N/A	#N/A
	Duininck Bros Inc - Port Plant 8	MN0061573	Mine Pit Dewatering Discharge	Inactive	#N/A	#N/A
	Prinsburg WWTP	MN0063932	Total Facility Discharge	0.055	845	1362
07020006-501	ADM - Marshall	MN0057037	Total Facility Discharge	2.64	#N/A	NA
	Magellan Pipeline Co LP - Marshall	MN0059838	Contact Water, lab drain, condensate	0.72	#N/A	#N/A
	Marshall WWTP	MN0022179	Main Facility Discharge	4.5	2880	3981
07020006-503	ADM - Marshall	MN0057037	Total Facility Discharge	2.64	#N/A	NA
	Magellan Pipeline Co LP - Marshall	MN0059838	Contact Water, lab drain, condensate	0.72	#N/A	#N/A
	Marshall WWTP	MN0022179	Main Facility Discharge	4.5	2880	3981
07020007-723	ADM - Marshall	MN0057037	Total Facility Discharge	2.64	#N/A	NA
	Ag Processing Inc - Dawson	MN0040134	NCCW/Boiler Blwdwn/Sft & Grnsd Bkws/RO reject	1.53	944	#N/A
		MN0040134	Stormwater Benchmarking Station	Unknown/variable	#N/A	#N/A
	Amboy WWTP	MN0022624	Main Facility Discharge	0.287	NA	1930
	Appleton WWTP	MN0021890	Effluent to Pomme De Terre River	0.44	1319	2171
	Balaton WWTP	MN0020559	Bypass 030	Unknown/variable	#N/A	#N/A
		MN0020559	Total Facility Discharge	0.123	973	#N/A
	Barry WWTP	MN0020273	Effluent To Surface Water	Inactive	#N/A	#N/A
	Benson WWTP	MN0020036	Total Facility Discharge	0.985	1195	1978
	Bird Island WWTP	MN0022829	Total Facility Discharge	0.186	949	#N/A
	Blue Earth WWTP	MN0020532	Discharge from Facility	0.98	1907	3190
	BNSF Railway Co - Willmar	MN0000779	Discharge of Non-Contact Stormwater to Foot Lake	Unknown/variable	#N/A	#N/A
	Butterfield WWTP	MN0022977	Total Facility Discharge	0.29	1089	1569
	Chippewa Valley Ethanol Co LLLP	MN0062898	Pipe discharge from treatment pond	0.031	1636	2109
		MN0062898	Outfall SD001 flow measurement	Unknown/variable	#N/A	#N/A
	CHS Mankato	MN0001228	Noncontact cooling water	3.888	475	#N/A
		MN0001228	Reject waters RO system	0.086	2245	#N/A
		MN0001228	Industrial Stormwater from Facility	Unknown/variable	#N/A	#N/A
	Clara City WWTP	MN0023035	Total Facility Dischage	0.46	1183	1818
	Comfrey WWTP	MN0021687	Main Facility Discharge	0.075	#N/A	#N/A
	Community of Roseland WWTP	MN0070092	Main Facility Discharge	0.03	#N/A	#N/A
	Darling Ingredients Inc - Blue Earth	MN0002313	Formerly 020 - Controlled discharge	0.15	NA	NA
		MN0002313	Formerly 010-Continuous Discharge	0.15	2039	2985
		MN0002313	annual loadings	Unknown/variable	#N/A	#N/A
	Dawson WWTP	MN0021881	Total Faciity Discharge	0.471	1799	3062
	DeGraff WWTP	MN0071234	Surface Discharge	0.021	#N/A	#N/A
	Del Monte Foods Inc - Sleepy Eye Plant 114	MN0001171	Discharge from Pond 4 to JD30	0.768	#N/A	#N/A
		MN0001171	Tile Outlet from LA310 to JD30	Unknown/variable	#N/A	#N/A
		MN0001171	East Tile Outlet from LA310 North Field to JD30	Unknown/variable	#N/A	#N/A
		MN0001171	West Tile Outlet from LA311 to JD30	Unknown/variable	#N/A	#N/A
		MN0001171	NCCW and RO Reject to City Storm Sewer to JD30	0.122	1691	#N/A
		MN0001171	Compliance Tracking for Combined SD001 and SD006	0.768	#N/A	#N/A
	Delft Sanitary District WWTP	MN0066541	Total Facility Discharge	0.006	#N/A	#N/A
	Delhi WWTP	MN0067008	Facility Discharge	0.014	1724	2948
	DENCO II LLC	MN0060232	CT blowdown/RO reject/iron filter backwash	0.25	3287	3894
		MN0060232	Stormwater south outfall	Unknown/variable	#N/A	#N/A
		MN0060232	Outfall SD002 flow	Unknown/variable	#N/A	#N/A
	Duininck Bros Inc - Port Plant 8	MN0061573	Mine Pit Dewatering Discharge	Inactive	#N/A	#N/A
	Fairmont Dredge	MN0051322	Effluent To Surface Water	Inactive	#N/A	#N/A
	Fairmont Foods Inc	MN0001996	Discharge to Storm Sewer	0.18	3529	3844
	Fairmont WTP	MN0045527	Discharge from lagoon	0.003	#N/A	#N/A
	Fairmont WWTP	MN0030112	001 Total Facility Discharge	3.9	689	1128
	Franklin WWTP	MN0021083	Main Facility Discharge	0.115	1158	1960
	Freeborn WWTP	MN0040908	Total Facility Discharge	0.036	#N/A	#N/A
	Granite Falls Energy LLC	MN0066800	Utility wastewater pipe outfall	0.132	NA	NA
		MN0066800	Northwest Stormwater Pond	Unknown/variable	#N/A	NA
		MN0066800	Southwest Stormwater Pond	Unknown/variable	#N/A	NA
	Granite Falls WWTP	MN0021211	Total Facility Effluent	0.8	727	#N/A
	Great River Energy - Lakefield Junction Station	MN0067709	Discharge from the Stormwater Pond to the Judicial Ditch	0.009	#N/A	#N/A
	Green Plains Fairmont LLC	MN0068063	Stormwater Pond #2 valve outfall	Unknown/variable	#N/A	#N/A
	Hanska WWTP	MN0052663	Total Facility Discharge	0.05	#N/A	#N/A
	Hendricks WWTP	MN0021121	Pond Discharge to Surface Water	0.185	555	#N/A
	Highwater Ethanol LLC	MN0068586	Plant site stormwater pond pipe outfall	Unknown/variable	#N/A	#N/A
	Jordan Sands LLC	MN0070581	Mine Dewatering	3.6	451	821
		MN0070581	Stormwater Discharge-Rail Infrastructure	Unknown/variable	#N/A	680
	Kerkhoven WWTP	MN0020583	Total Facility Discharge	0.15	944	1824
	La Salle WWTP	MN0067458	Total Facility Discharge	0.015	#N/A	#N/A
	Lake Crystal WWTP	MN0055981	001 Main Discharge	0.59	1616	#N/A
	Lakefield Junction LLP	MN0064602	JD 8 - Site 1 (Background)	Inactive	#N/A	#N/A
		MN0064602	JD 10 - Site 2 (Background)	Inactive	#N/A	#N/A

		MN0064602	JD 3 - Site 1	Inactive	#N/A	#N/A
		MN0064602	JD 6 - Site 2	Inactive	#N/A	#N/A
		MN0064602	JD 2 - Site 1	Inactive	#N/A	#N/A
		MN0064602	JD 11 - Site 1	Inactive	#N/A	#N/A
		MN0064602	JD 7 - Site 2	Inactive	#N/A	#N/A
		MN0064602	JD 12 - Site 2	Inactive	#N/A	#N/A
		MN0064602	JD 9 - Site 2	Inactive	#N/A	#N/A
		MN0064602	Pond Drainage Tile Line	Inactive	#N/A	#N/A
	Leavenworth Silage Co	MN0049905	Benchmark Monitoring Location	Unknown/variable	#N/A	#N/A
	LG Everist Inc	MN0068764	Pit dewatering & Stormwater	0.48	#N/A	#N/A
		MN0068764	Crushed granite washwater	0.3	#N/A	#N/A
	Lower Sioux Indian Community	MNU061433	New Membrane Facility	Inactive	#N/A	#N/A
	Lucan WWTP	MN0031348	Total Facility Discharge	0.028	513	847
	Madelia WWTP	MN0024040	Main Facility Discharge	1.314	1802	2997
		MN0024040	Stormwater Runoff	Unknown/variable	#N/A	#N/A
	Madison WWTP	MN0051764	Main Facility Discharge	0.48	1609	2433
	Magellan Pipeline Co LP - Marshall	MN0059838	Contact Water, lab drain, condensate	0.72	#N/A	#N/A
	Mapleton WWTP	MN0021172	Main Facility Discharge	0.406	446	#N/A
	Marshall WWTP	MN0022179	Main Facility Discharge	4.5	2880	3981
	Maynard WWTP	MN0056588	Total Facility Discharge	0.153	1473	2462
	Millerville WWTP	MN0054305	Surface Water Discharge	0.02	#N/A	#N/A
	Montevideo WWTP	MN0020133	Total Facility Discharge	3	1541	2527
	Morgan WWTP	MN0020443	Main Facility Discharge - Existing Mechanical Facility	0.359	1934	2927
		MN0020443	Total Facility Discharge - Proposed Pond Facility	NA	795	1316
	Morris WWTP	MN0021318	20-Acre Secondary Pond (S4)	0.964	1913	3352
		MN0021318	30-Acre Secondary Pond (S5)	Unknown/variable	1790	#N/A
	Morton WWTP	MN0051292	Total Facility Discharge	0.133	2077	#N/A
	Mountain Lake WWTP	MN0021466	Total Facility Discharge	0.35	850	1449
	New Richland WWTP	MN0021032	Main Discharge	0.6	771	1293
	New Ulm WWTP	MN0030066	Main Discharge Point	6.77	1494	2471
		MN0030066	Backup Discharge - High Water Period	Unknown/variable	NA	2629
		MN0030066	Mass Limits Calculation Station (SD002 + SD003)	NA	#N/A	#N/A
	Northrop WWTP	MN0024384	Total Facility Discharge (Limits apply only during discharge)	0.06	#N/A	#N/A
	Olivia WWTP	MN0020907	Total Facility Discharge	0.98	1089	1967
	POET Biorefining - Bingham Lake	MN0063118	Facility stormwater pond pipe outfall to County Tile Ditch 23	Unknown/variable	1431	2051
	POET Biorefining - Lake Crystal LLC	MN0067172	Reverse osmosis reject brine, to river	Unknown/variable	NA	NA
		MN0067172	Industrial Stormwater (Basin 1, East)	Unknown/variable	#N/A	415
		MN0067172	Industrial Stormwater (Basin 2, West)	Unknown/variable	#N/A	391
	Prinsburg WWTP	MN0063932	Total Facility Discharge	0.055	845	1362
	PURIS Proteins LLC - Dawson	MN0048968	Discharge to Lac Qui Parle River	0.048	1641	3808
	Redwood Falls Kaolin Mine	MN0059331	Stockpile Runoff	0.15	#N/A	#N/A
	Redwood Falls WWTP	MN0020401	Main Discharge	1.321	1683	2608
	Renville WWTP	MN0020737	Main Discharge	0.853	1238	1904
	Sacred Heart WWTP	MN0024708	Total Facility Discharge	0.237	1179	1814
	Saint Clair WWTP	MN0024716	Total Facility Discharge	0.212	1091	#N/A
	Saint George District Sewer System	MN0064785	Surface Water Discharge	0.007	#N/A	#N/A
	Saint James WWTP	MN0024759	Main Discharge	2.96	1536	1997
	Saint Leo WWTP	MN0024775	Total Facility Discharge	0.017	#N/A	#N/A
	Seneca Foods Corp - Blue Earth	MN0001287	Cooling Water Effluent	Unknown/variable	#N/A	#N/A
	Southern Minnesota Beet Sugar Coop	MN0040665	SB 001	NA	#N/A	#N/A
		MN0040665	Non-contact cooling outfall to CD37	0.5	905	#N/A
		MN0040665	Site 8 tile line to unnamed wetland/CD37	Unknown/variable	1500	#N/A
		MN0040665	Site 9 tile line to W. Fork Beaver Creek	Unknown/variable	1253	#N/A
		MN0040665	Site 6B tile line outlet	Unknown/variable	NA	#N/A
		MN0040665	Clara City West Remote Site (CD 20)	2.26	1519	#N/A
		MN0040665	Treatment plant/cooling dschg to CD45	2.26	#N/A	#N/A
		MN0040665	Clara City East Remote Site (CD-4)	Unknown/variable	#N/A	#N/A
		MN0040665	Murdock Remote Site (CD 16)	Unknown/variable	#N/A	#N/A
		MN0040665	Milan Remote Site (CD 5)	Unknown/variable	#N/A	#N/A
		MN0040665	Benson Remote Site (Lateral G of CD-22)	Unknown/variable	#N/A	#N/A
		MN0040665	Redwood Falls Remote Site (Ramsey Creek)	Unknown/variable	#N/A	#N/A
		MN0040665	Maynard (CR-4 Ditch)	Unknown/variable	#N/A	#N/A
		MN0040665	Raymond Remote Site (JD-7)	Unknown/variable	#N/A	#N/A
		MN0040665	Hector Remote Site (JD-15)	Unknown/variable	#N/A	#N/A
		MN0040665	Buffalo Lake (JD-24)	Unknown/variable	#N/A	#N/A
		MN0040665	Bird Island Remote Site (JD-9)	Unknown/variable	#N/A	#N/A
	Springfield WWTP	MN0024953	Main Facility Discharge	0.78	965	1624
	Starbuck WWTP	MN0021415	Surface Water Discharge	0.35	954	808
	Tracy WWTP	MN0021725	North Pond System	0.15	1618	#N/A
		MN0021725	South Pond System	0.15	1683	#N/A
		MN0021725	Mass Calculation Station (SD001 + SD002)	0.30	#N/A	#N/A
	Trimont WWTP	MN0022071	Main Discharge	0.186	1370	2401
	Truman WWTP	MN0021652	001 Main Discharge	0.78	1375	2171
	Valero Welcome Plant	MN0068161	Stormwater Discharge Pond #1	Unknown/variable	#N/A	493

		MN0068161	Stormwater #2 Discharge	Unknown/variable	#N/A	624
	Vernon Center WWTP	MN0030490	Total Facility Discharge	0.059	#N/A	#N/A
	Wabasso WWTP	MN0025151	Main Facility Discharge	0.113	1771	3004
	Waldorf WWTP	MN0021849	002 Manhole Overflow	NA	#N/A	#N/A
		MN0021849	Mechanical Facility Discharge	0.096	680	#N/A
		MN0021849	Pond Discharge	Inactive	#N/A	#N/A
	Walnut Grove WWTP	MN0021776	Main discharge pipe outfall	0.203	1456	2038
	Waseca WWTP	MN0020796	Main Facility Discharge	3.5	1140	1845
	Welcome WWTP	MN0021296	Main Discharge	0.26	1403	2214
	Wells Public Utilities	MN0025224	Discharge From 25.8 Acre Cell	1.088	7	#N/A
		MN0025224	Discharge From 69.7 Acre Cell	0	372	#N/A
		MN0025224	Phosphorus Limit Calculation	Unknown/variable	#N/A	#N/A
	Willmar Municipal Utilities	MN0069663	Co-mingled points 2, 3 and 4 - 24" storm sewer	Unknown/variable	#N/A	#N/A
		MN0069663	Ash load out area 1	Unknown/variable	#N/A	#N/A
	Willmar WWTP	MN0025259	Total Facility Discharge	7.51	1368	2441
	Winnebago WWTP	MN0025267	001 Main Discharge	1.7	3711	4868
	Xcel Energy - Minnesota Valley	MN0000906	Metal Cleaning Discharge To 030	0	#N/A	#N/A
		MN0000906	Dewatering/Discharge via Former Coal Yard	Unknown/variable	#N/A	#N/A
07020008-503	Balaton WWTP	MN0020559	Bypass 030	Unknown/variable	#N/A	#N/A
		MN0020559	Total Facility Discharge	0.123	973	#N/A
	Tracy WWTP	MN0021725	North Pond System	0.15	1618	#N/A
		MN0021725	South Pond System	0.15	1683	#N/A
		MN0021725	Mass Calculation Station (SD001 + SD002)	0.30	#N/A	#N/A
07020012-548	DAIRY FARMERS OF AMERICA	MN0003671	Process Wastewater Discharge	0.14	1668	2589
		MN0003671	Non-Contact Cooling Water Discharge	1	#N/A	#N/A
	Heartland Corn Products	MN0062561	East Plant north stormwater discharge	Unknown/variable	#N/A	852
		MN0062561	East Plant south stormwater discharge	Unknown/variable	#N/A	#N/A
		MN0062561	West Plant stormwater pond discharge	Unknown/variable	#N/A	#N/A
		MN0062561	E Plant AST secondary containment discharge	Unknown/variable	#N/A	#N/A
	MG Waldbaum Co	MN0060798	Discharge from Facility to Lateral Ditch C	0.599	3272	#N/A
	Starland Hutterian Brethren Inc	MN0067334	Main Facility Discharge	0.011	#N/A	#N/A
	Winthrop WWTP	MN0051098	Facility Discharge	0.348	1337	2114
		MN0051098	Tile Line East	Unknown/variable	#N/A	1455
		MN0051098	Tile Line West	Unknown/variable	#N/A	1459
07020012-808	SUEZ WTS Solutions USA Inc	MN0059013	Non-Contact Cooling Water/Greensand Filter Backwash and Rinsat	Unknown/variable	#N/A	#N/A
07020012-822	New Prague WWTP	MN0020150	001 Main Discharge	1.83	1284	2244
07100001-602	Brewster WWTP	MN0021750	Tile Line Discharge	0.191	#N/A	1677
	Hubbard Feeds Inc - Worthington	MN0033375	Boiler/softener regenerate	Unknown/varaible	4836	10363
	Worthington Industrial Wastwater Treatment Pla	MN0031178	Settling Ponds	Unknown/varaible	NA	NA
		MN0031178	Activated Sludge	2.16	1966	2976
		MN0031178	Total Flow from both SD001 and SD002	Unknown/variable	#N/A	#N/A
		MN0031178	Mass Calculation (SD001 + SD002)	NA	#N/A	#N/A
	Worthington WWTP	MN0031186	Main Facility Discharge	4	1214	1983
09020101-502	Minn-Dak Farmers Cooperative	MN0070386	Lyngaas Piling Ground, Central Wilkin Co., Bradford Township	Unknown/variable	790	#N/A
		MN0070386	Hawes Piling Ground, Southern Wilkin Co., Champion Township	Unknown/variable	627	#N/A
		MN0070386	Lehman Piling Ground, North Traverse Co., Tintah Township	Unknown/variable	952	#N/A
09020102-557	Dumont WWTP	MN0064831	Surface Water Discharge	0.015	#N/A	#N/A
09020106-538	Xcel Energy Rice Street Service Center	MN0060755	Seg 1: Flush & test	Unknown/variable	#N/A	#N/A
09020106-615	Spring Prairie Colony	MN0070467	Surface Water Discharge	0.02	#N/A	#N/A
09020309-504	Enbridge Energy Ltd - Clearbrook	MN0056324	Viking Station Containment	Unknown/variable	#N/A	#N/A